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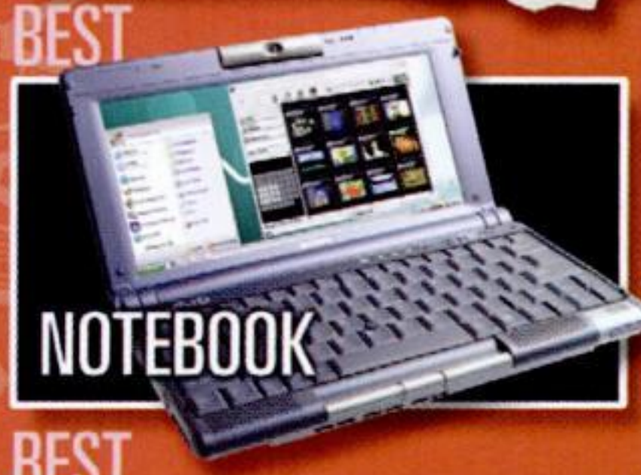

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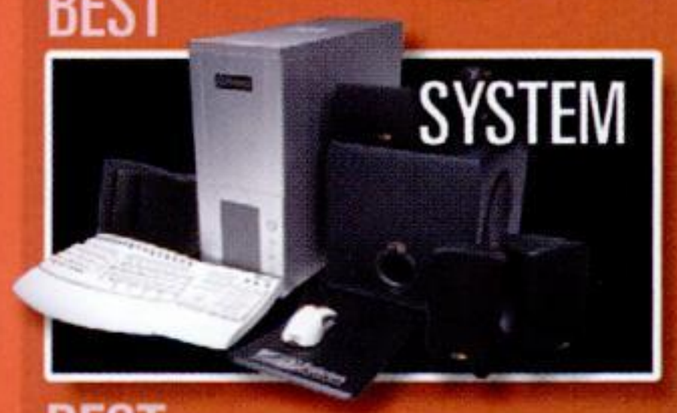

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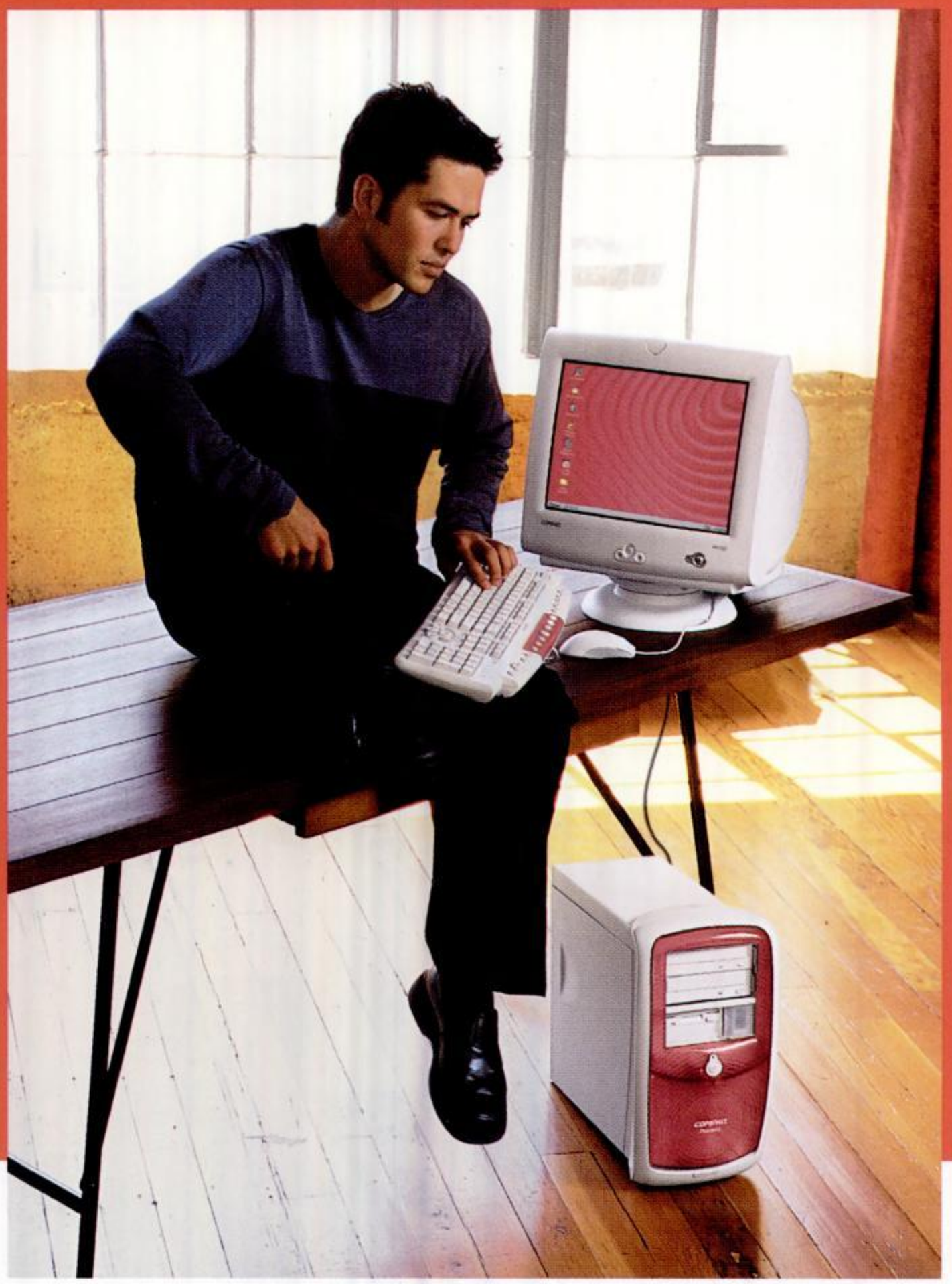

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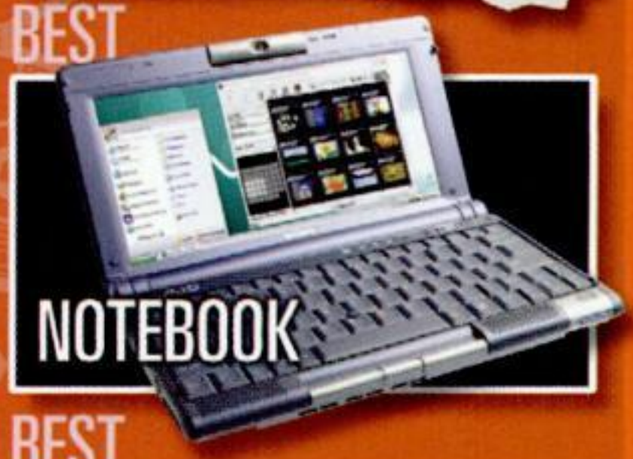

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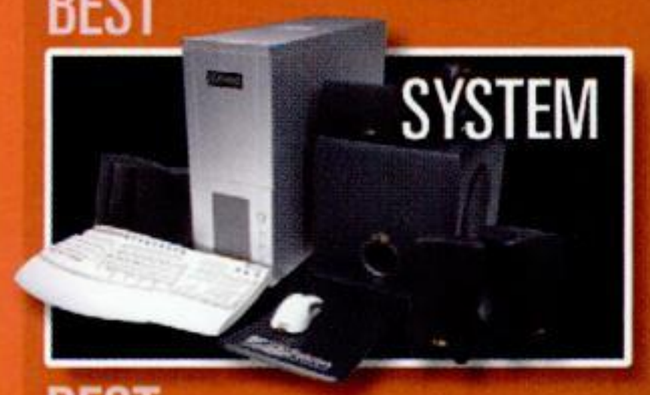

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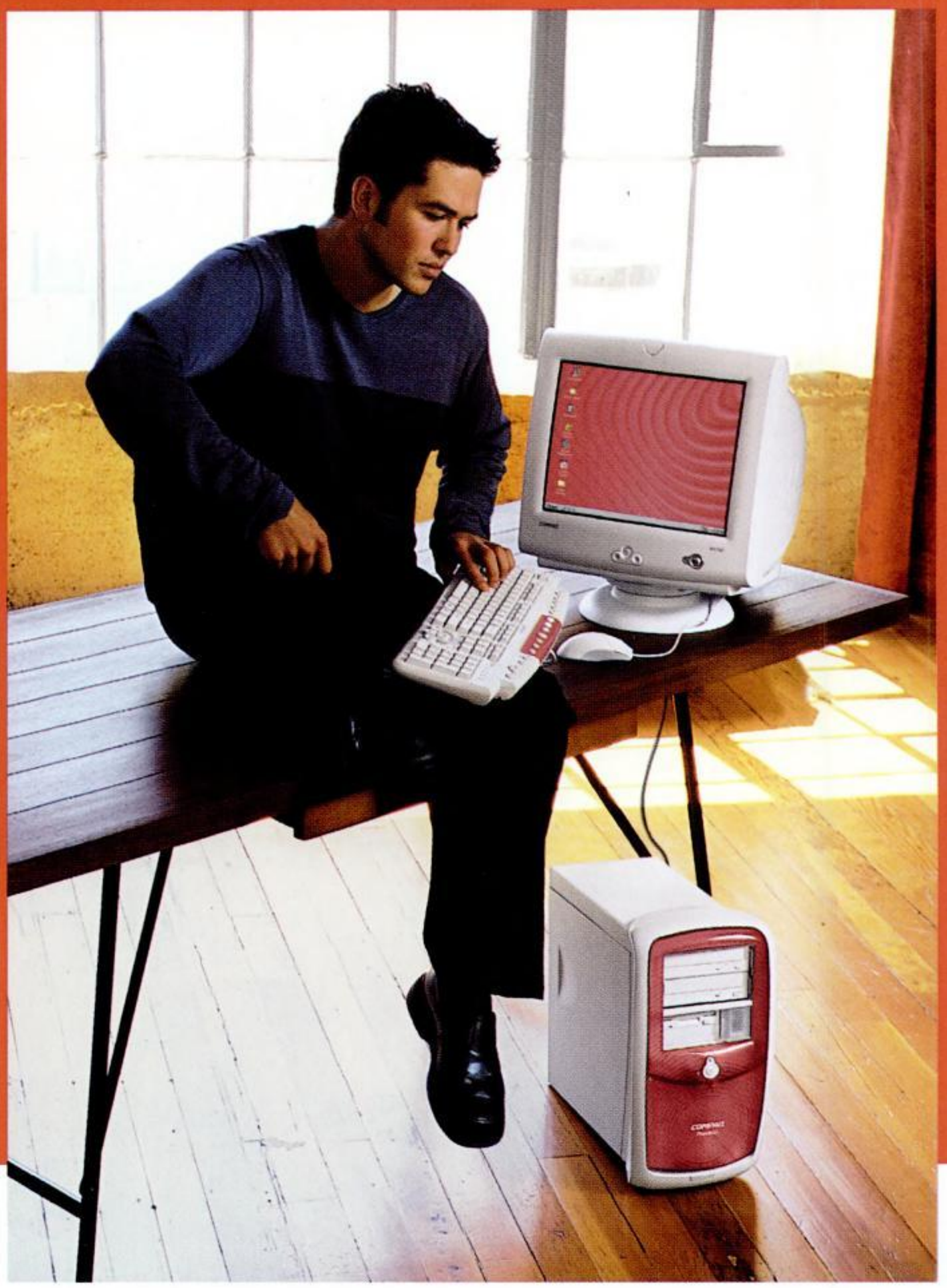

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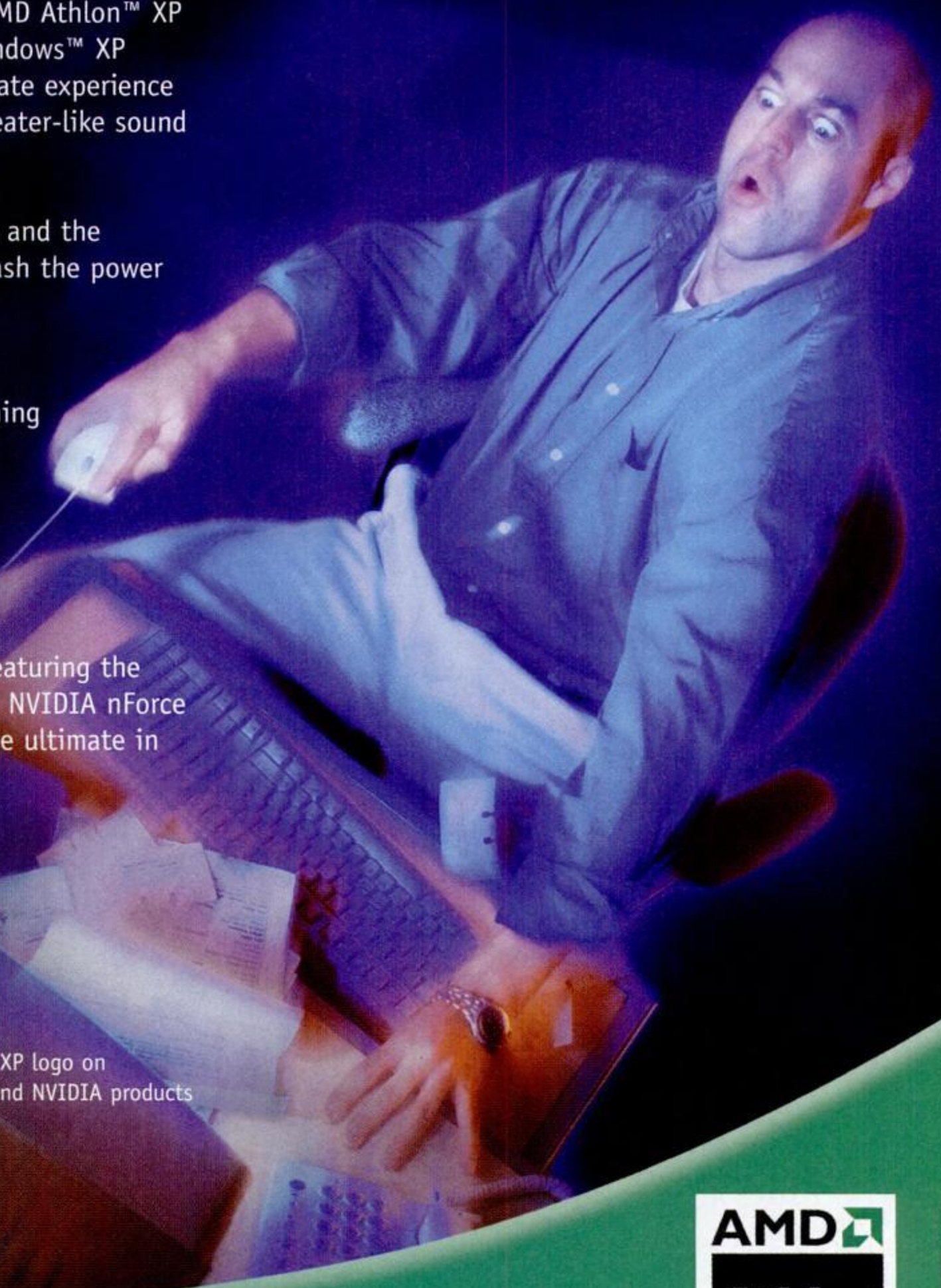

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Release Notes

Just the FAQs!

This issue, we begin a new tradition: The Year-End Maximum PC FAQ. This printed version is only three questions long, but the extended version can be found in the Mag Reprints section of MaximumPC.com.

Q: How come you won't respond to my e-mail?!

A: On average, each of our editors receives about 150 e-mails a day. About 100 of these letters are from readers, while the remaining 50 are pitches from product vendors, queries from freelance writers, and spam from porn sites (and, Brandie, while I'd be happy to periodically check up on you and your sorority sisters, I think your grades will begin to suffer unless you spend less time undressing in front of your "amateur cam" and more time hitting the books). We don't employ any editorial assistants in our humble shop, so every editor is responsible for reading his or her own mail.

Now, given that we actually have a nagging little distraction called a "magazine" to publish every month, we don't have a lot of time for correspondence—but we do try our best. So if you want to increase the probability of receiving an answer, do two things: 1) Write your letter as concisely and clearly as possible in 200 or fewer words. 2) Be civil. We absolutely encourage criticism, and we invite all readers to point out mistakes and errors of judgement in the magazine. But if you resort to name-calling and smack-talk, you'll only raise the ire of the editors, and you'll never receive an answer. I know it's a shocking concept, but politeness can yield positive results.

Q: What do you do with all the hardware you review?

A: All of our review hardware is on loan from vendors. It typically stays in the Lab for three to six months for extended tinkering. We can't give it away, because it is not ours to give!

Q: Which upgrade component should I buy?

A: We're almost always reluctant to give readers answers to their own unique upgrading problems. The correct answer usually depends on numerous, user-specific variables, and we rarely have the time to learn enough about your computing needs and current hardware setup to make wise, informed recommendations. However, we like to think our product reviews contain all the information you'll ever need—so when in doubt, please refer to the magazine.

I'll close by saying the magazine staff appreciates all your letters of praise and encouragement. We don't run them in the magazine (to do so would be too self-serving), but we do circulate them around the office. Your letters inspire us to work harder and smarter every month. Thanks for a wonderful 2001!

—JON PHILLIPS

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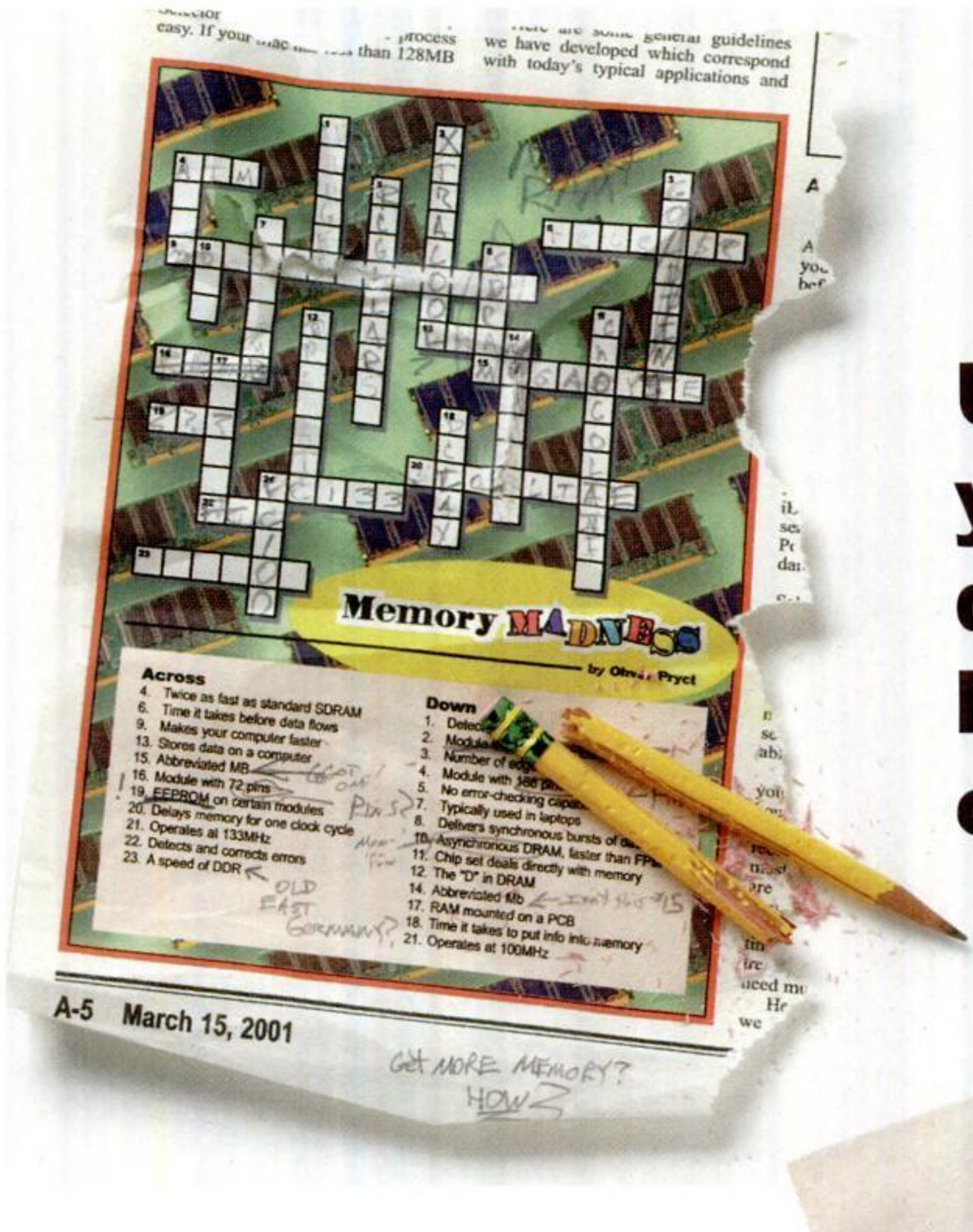

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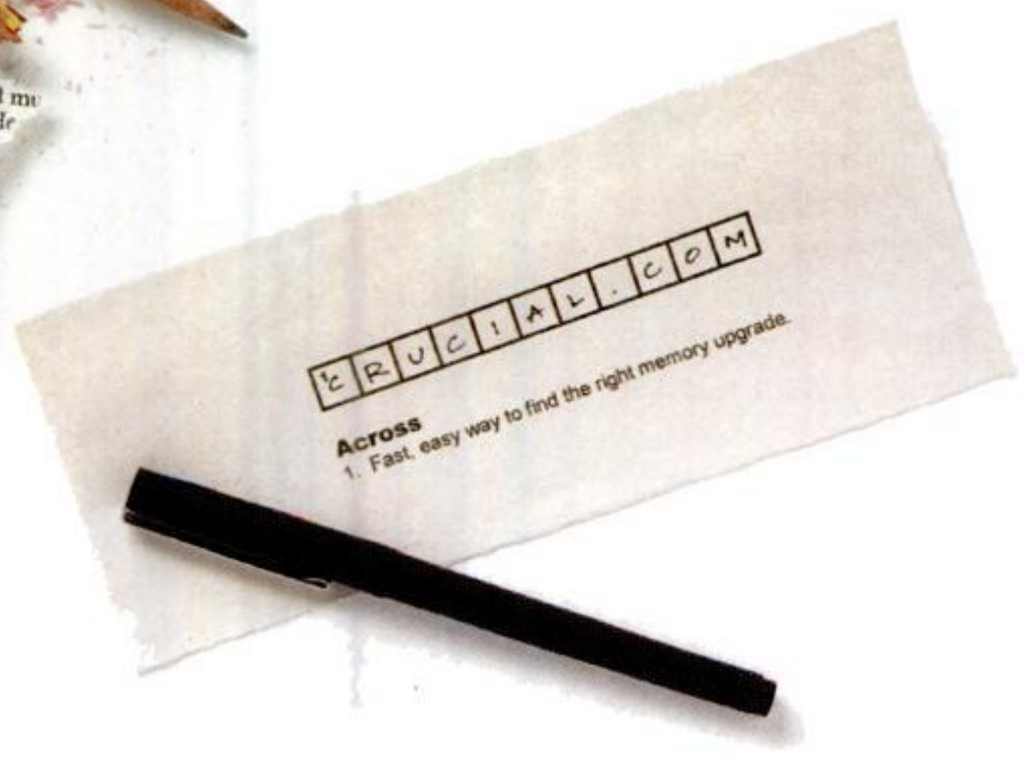

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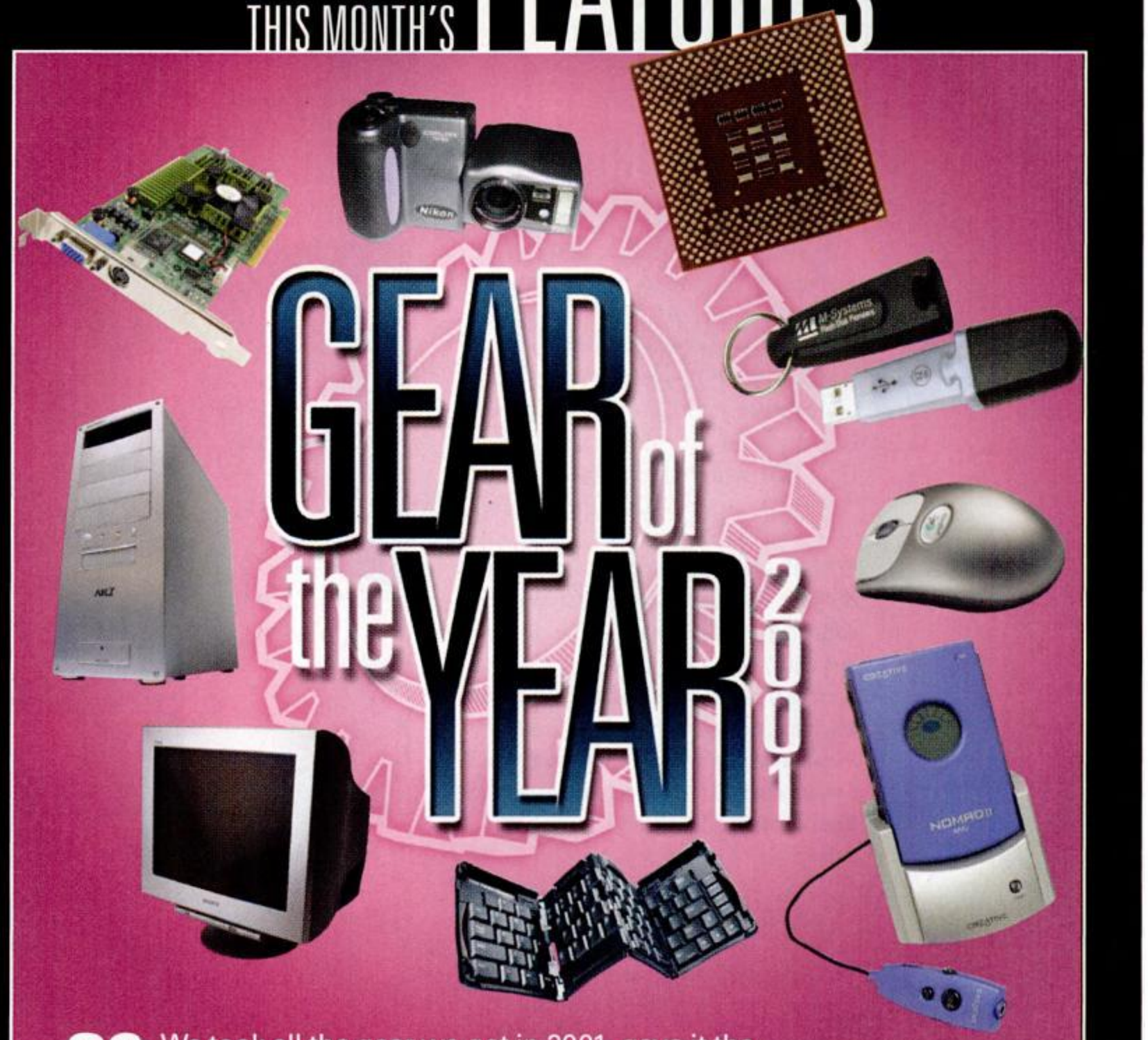
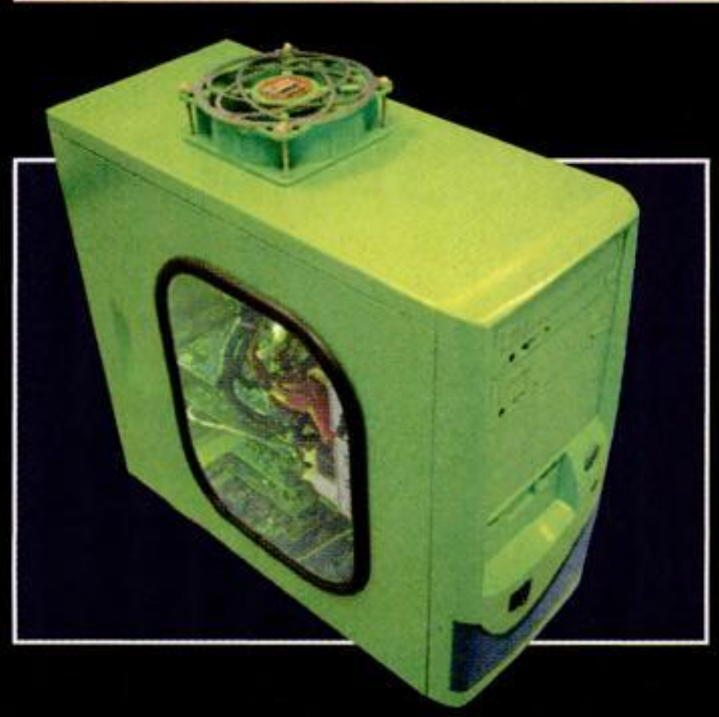


26 We took all the gear we got in 2001, gave it the once-twice-thrice over, debated endlessly, and finally picked the best parts in every category.



46 Rigs of the Year
Three whole pages of tricked-out, see-through, neon-pulsing case mods. Do we have the PC world's cleverest, most creative readers, or what?

50 PC Gadget Guide
What happens when you put a fetching elf, a bevy of digital toys, a potent batch of eggnog, and the Heimlich maneuver together in one feature? Find out.

In/Out

You write, we respond

We Can't Believe He Ate the Whole Thing

Hey, what's up with saying that Hot Tamales are made south of the border ["Exit," July 2001]? I work at Just Born, Inc.—makers of Hot Tamales and Mike and Ike—and I want all your readers to know that the candy is made right here in the good old USA. Bethlehem, PA, to be exact.

—ROBERT FRANK

EDITOR-IN-CHIEF JON PHILLIPS REPLIES: Uh, how about this for an explanation: We have a Canadian world view, and when we wrote "south of the border," we meant south of the *US-Canadian* border. OK, lame excuse, I know. But I challenge the entire candy-making community to find a magazine staff more supportive of the Just Born cause. Go Tamales!

HOT TAMALES
MIKE AND IKE
MIKE AND IKE
MIKE AND IKE

excellent 2D and non-gaming 3D, such as *AutoCAD* users. The reason you should buy the G550 rather than the G450 is that the G550 retail box is cheaper. The G450 retail is $125, but I paid $117 for the retail G550 (OEM G550s are $95). The review says the only real difference between the two cards is the headcasting software, which could be purchased separately for $45. So, according to our brainless reviewer, if we want the headcasting software and a dual-display card, we should get the G450 ($125 retail, $80 OEM), then get the headcasting software for $45, bringing the total to $170 retail ($125 OEM)!

—MICHAEL ANDERSON

TECHNICAL EDITOR WILL SMITH, AKA THE MORON, RESPONDS: Just about any card on the market does 2D as well as the G550, and anyone who's serious about CAD work will use a card designed for that purpose, not a $100 card. We do, however, acknowledge that not everyone needs a 3D gaming card, so we didn't even ding the G550 for its abysmal performance in our gaming benchmarks. We dinged it for being functionally equivalent to the cheaper G450, which can actually be found in OEM wrappings for around $50 these days (not $80). In fact, the only real technical difference we could find between the G550 and the G450 boards was the G550's slightly higher RAMDAC speeds. That means the only significant difference between the G550 and the G450 is a software bundle that includes lame applications, some of which don't work and even go so far as to creep people out. The review stands. Sorry, Michael, the G550 sucks.

WINDOWS XP: ARE YOU NUTS?!

Oh, come on, now...Windows XP, a Kick Ass Award and a 10 verdict [November 2001]? Give me a bloody break! Look at it from the point of view of a real user:

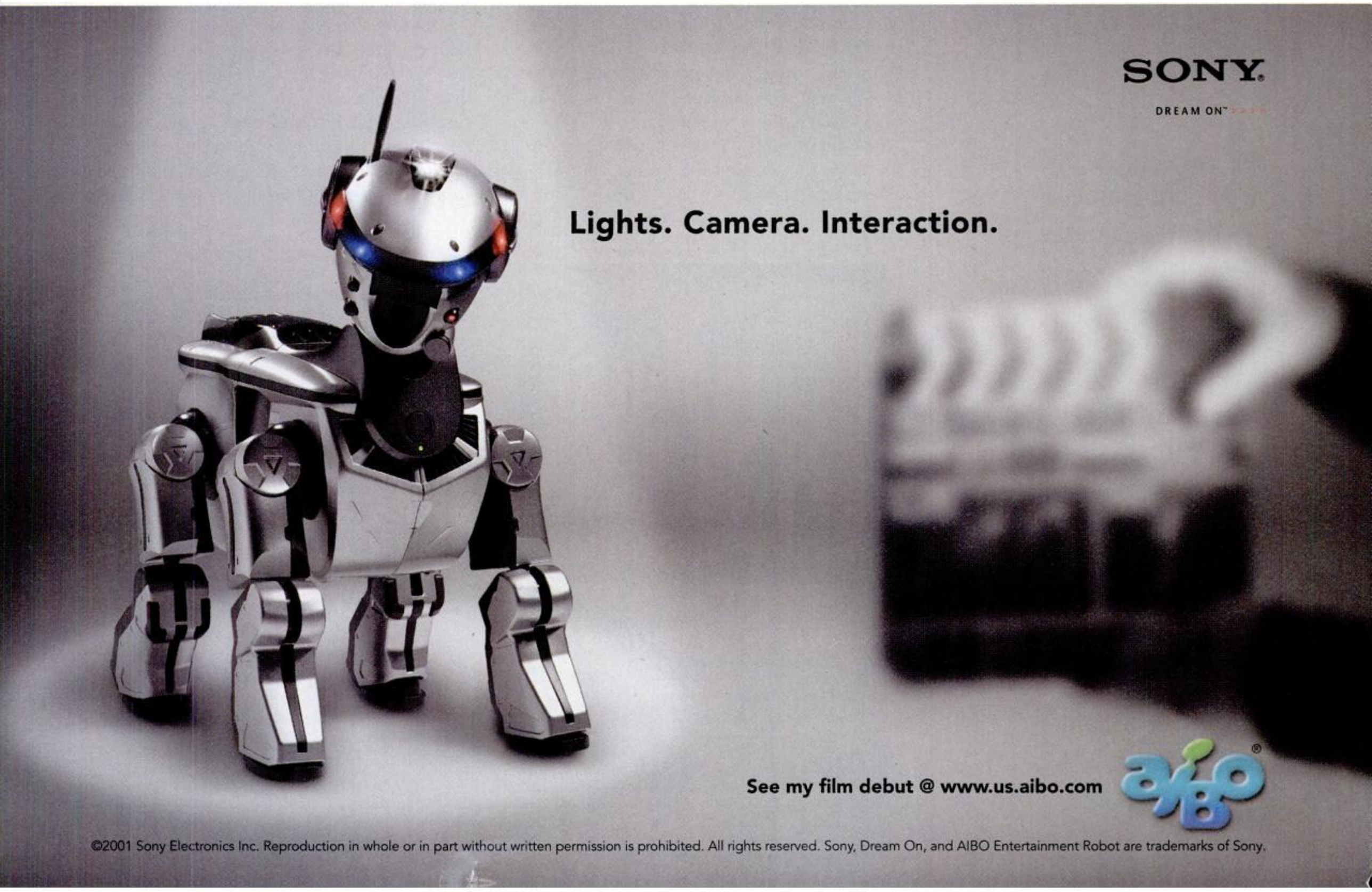
- 32-bit kernel: a good thing, no doubt about it.
- One stinking inefficient memory hog, not so good.
- Product activation—not bad if you don't even know how to take off the case and you never crack the box, but it sucks if you leave the case off and upgrade continually.

I love your recommendation: "We strongly recommend upgrading to WinXP if your computer is less than two years old and you have more than 128MB of RAM." Which really means: "Yes, Bill Gates needs that infusion of cash, so upgrade your newer Win2000 system with Win2001, but be ready for Win2002 on the horizon! Way to sell out guys; you lost a lot of credibility today!

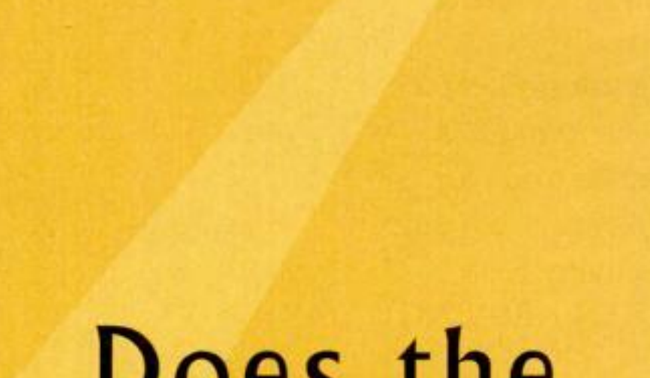
—KEN NEVLING

TECHNICAL EDITOR WILL SMITH RESPONDS: Before we installed WinXP and used it for ourselves, we shared many of your concerns. And we certainly expressed our skepticism at the beginning of the November issue review. But, for the record, we gave WinXP a 10 verdict and Kick Ass Award for including more useful new features than any previous version of Windows since Win95—features such as the integrated CD-burning app, an upgrade to the NT kernel, awesome benchmark performance, and rock-solid stability.

In the October and November issues of *Maximum PC*, we used almost two pages to explain how WinXP's controversial Product Activation works. After extensive testing, we at *Maximum PC* don't feel that it will affect even the most hardcore upgrader, just the people who "upgrade" more than one PC with the



Does the work of 3.



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Reader Letters

same copy of WinXP.

To close, let's look back at *Maximum PC*'s coverage of Win98 and WinME. In September 1998, we gave Win98 a 6 verdict and wondered why we were paying for a Win95 service pack and some new drivers. Ditto for WinME in October 2001. We believe that WinXP is as big an upgrade for 98 and ME users as Windows 95 was for Win3.1 users. I'd recommend that you not let yourself be blinded by your hatred of Microsoft, and instead enjoy a functional, stable new OS.

A MATTER OF PRIVACY

In the November issue you asked, "Do you think the online privacy debate should be covered in greater depth in our magazine, or should we just stick to basic product coverage?" On the very next page, you ran an article on PDA fashion. I think, in a way, you answered your own question. Everything to do with the PC, not just hardware and software, falls into your bailiwick. You should cover the online privacy debate in greater depth. Keep up the excellent work.

—BILL WILLIAMS

Regarding the question of adding online rights/privacy coverage to your magazine, my opinion is that you SHOULD NOT. I wholeheartedly agree that many issues (privacy, copyright, universal access, etc.) deserve forums for debate. However, adding these weighty issues to your already thin magazine would not do the issues justice. Because the core of these issues really transcends PC technology, I feel a debate in the pages of *Maximum PC* would serve neither the issues nor the *Maximum PC* readers.

I would be most happy if you would shrink the scope (but expand the size) of your magazine to cover only the territory described in your publication's pithy title. I do not wish to read MP3 player reviews, game reviews, or any reviews other than those that pertain directly to building (or buying, if you're a wimp), maintaining, and benchmarking powerful personal computers.

With the complexity of modern PC technology, it seems to me you could better serve the title *Maximum PC* by concentrating on the PC, not the music-playing peripherals, game software, or digital rights debate.

—SCOTT SWANSON

IT *IS* ALL FUN AND GAMES

I just read the letter to the editor from Eugene Pai [November 2001] disputing the opinion that gaming drives the PC industry. Sorry, I cannot leave this one unanswered. I am a 36-year-old software engineer working in the industrial sector. In my line of work, it is imperative to stay in touch with the latest hardware and platform developments.

Nothing pushes the envelope of consumer PCs (read that again, because this is important... CONSUMER PCs) more than the gaming community. Period.

Sure, video editing, rendering, 3D modeling, and other specialized business apps push the envelope as well, but the specialized (read that as "expensive as hell") equipment developed for these sectors just doesn't impact the consumer market very much.

Next time you go to buy a PC, think about the selling points: fast hard drives, video acceleration, CD burners, DVDs, fast processors, large quantities of cheap RAM. Why do you think you can buy so much cutting-edge hardware, truly revolutionary technology, for relatively little money? Because it is developed and produced in mass quantities, not for the very few specialized

MAXIMUM PC's

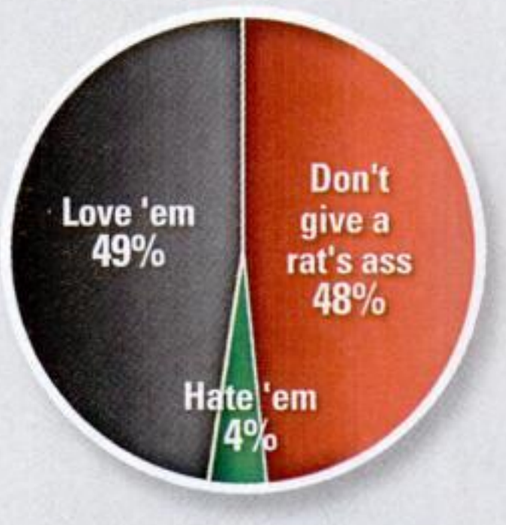
READER PULSE

POLLS

Your vote counts!

Please contribute to our reader polls at www.maximumpc.com.

How do you feel about cosmetic PC case modifications such as windows, wild paint jobs, and interior lights?



When we initiated our Rig of the Month department in June, we figured we were on to something. Sure, some of our readers don't care about case modding, but at least very few out and out hate the practice.

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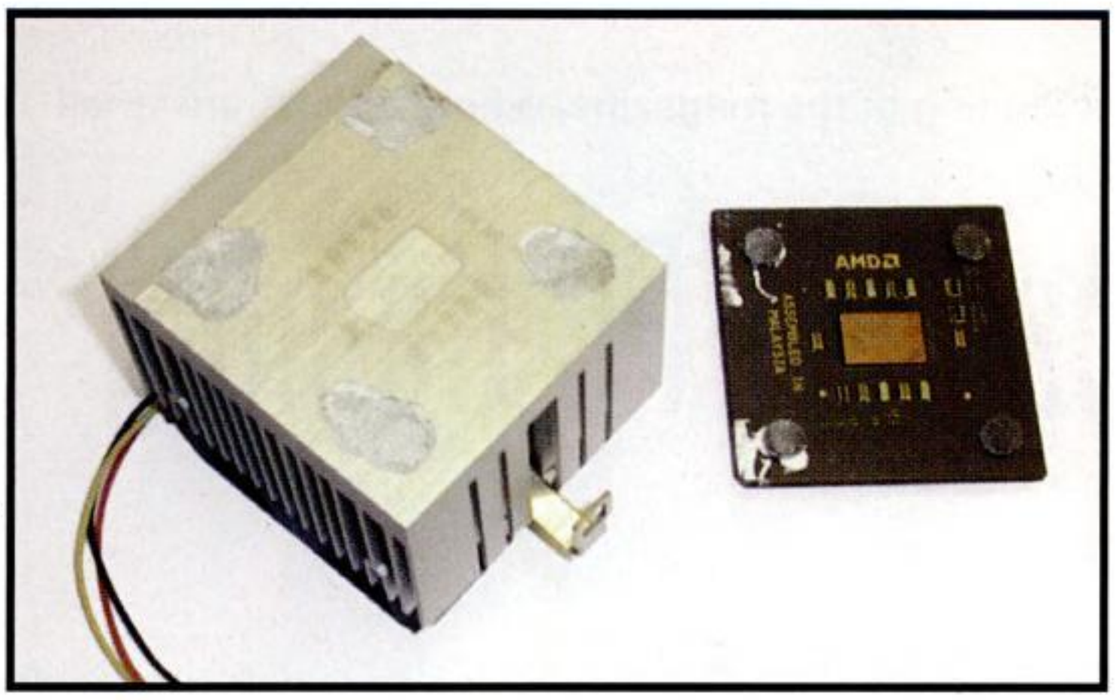

The CPU core is the thing in the middle, *brainiac.*

business needs, but for the average consumer who wants to play with the newest toys.

BTW: At lunchtime and breaks, you will find most of us adults online, gleefully kicking each other's ass in *Quake III*, *Unreal Tournament*, or *TeamFortress*.

Here's to keeping things in perspective.

—LONNIE R. WEST

YOU SAY TO-MAY-TO...

Some friends of mine recently got copies of *Deus Ex*. What I've been noticing is that they seem to pronounce the name of the game differently. Some say "Day-us X" others say "Deuce X." So which is the correct way to say it?

—VINCE SHIN

FEATURES EDITOR LOGAN DECKER RESPONDS: Tell "your friends" the pronunciation can be found right there on the game box! For the record, we also contacted Pamela Vaughn, Ph.D., Chair of the Classics department at San Francisco State University, who told us the proper pronunciation is "DAY-uhs ex."

HAIL TO THE QUEEN

Great article and interesting choice of artwork. I am, of course, referring to the rendering of the XP packaging, showing an impression of the OS's internals ["Windows XP Xposed," November 2001]. I'm not much of a Trekkie/Trekker/whatever-you-call-them, but I noticed a distinct similarity to a Borg cube, as seen in the "StarTrek: Next Generation" series. Resistance is futile? I'm sure it's just a coincidence...

—TOM MULCAHY

TERTIARY ADJUNCT TO UNIMATRIX ZERO-ONE GORDON MAH UNG RESPONDS: Puny human. You may have discovered our ploy, but now you and your pitiful little band will be destroyed. Your starship and system will be assimilated, and your technology will be added to our collective.

AND THE PRIZE FOR "MORON OF THE MONTH" GOES TO...

This Athlon 950MHz (see pic) came into my shop fried. The heatsink fan was too small and the fan went bad. Just look where the grease is!

—STUART DENNISON

SENIOR EDITOR GORDON MAH UNG ADDS: Obviously, the owner applied the grease to the pads rather than to the CPU core, thereby causing the CPU to burn up. The heatsink has clearly been singed from the intense heat generated by the core (notice the dark spots surrounding the area where the core would sit).

WE WANT OUR AQUANOX!

You guys keep telling us how great the new *Aquanox* benchmark is. We get to see the great screenshots, but how about sharing the benchmark itself so we can see it for ourselves? Is it out? I have scoured the net for it, but to no avail.

—RON GUTHRIE

TECH EDITOR WILL SMITH REPLIES: The *Aquanox* benchmark isn't publicly available, but the game itself should have already gone gold by the time you read this. If all goes according to plan, an *Aquanox* game demo will be on next month's Maximum CD. Stay tuned—and stay home unless you have a DirectX 8 videocard that can actually show off the game's stunning visual effects. ■

CUT, COPY, PASTE

■ **In our November issue review of the Dell 4300, we printed the wrong price—$900 is the price for the basic 4300 system, but we reviewed a more up-market 4300 config that costs $1,800 ($1,500 without monitor). We also misreported two of the review config's components: The rig we tested actually came with a GeForce3 Ti 200 and did not include FireWire ports.**

■ **In our November feature "The 10 Best Online Games You're Not Playing," we provided an incorrect URL for one of the Subspace community sites. The correct URL is www.subspacehq.com, not www.subspacehq.net. Our apologies to the Subspace Council.**

LETTERS POLICY: ***MAXIMUM PC*** invites your thoughts and comments. Send them to **input@maximumpc.com**. Please include your full name, town, and telephone number. Letters may be edited for space and clarity. Due to the vast amount of e-mail we receive, we cannot personally respond to each letter.

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Quick Start

The beginning of the magazine, where articles are small

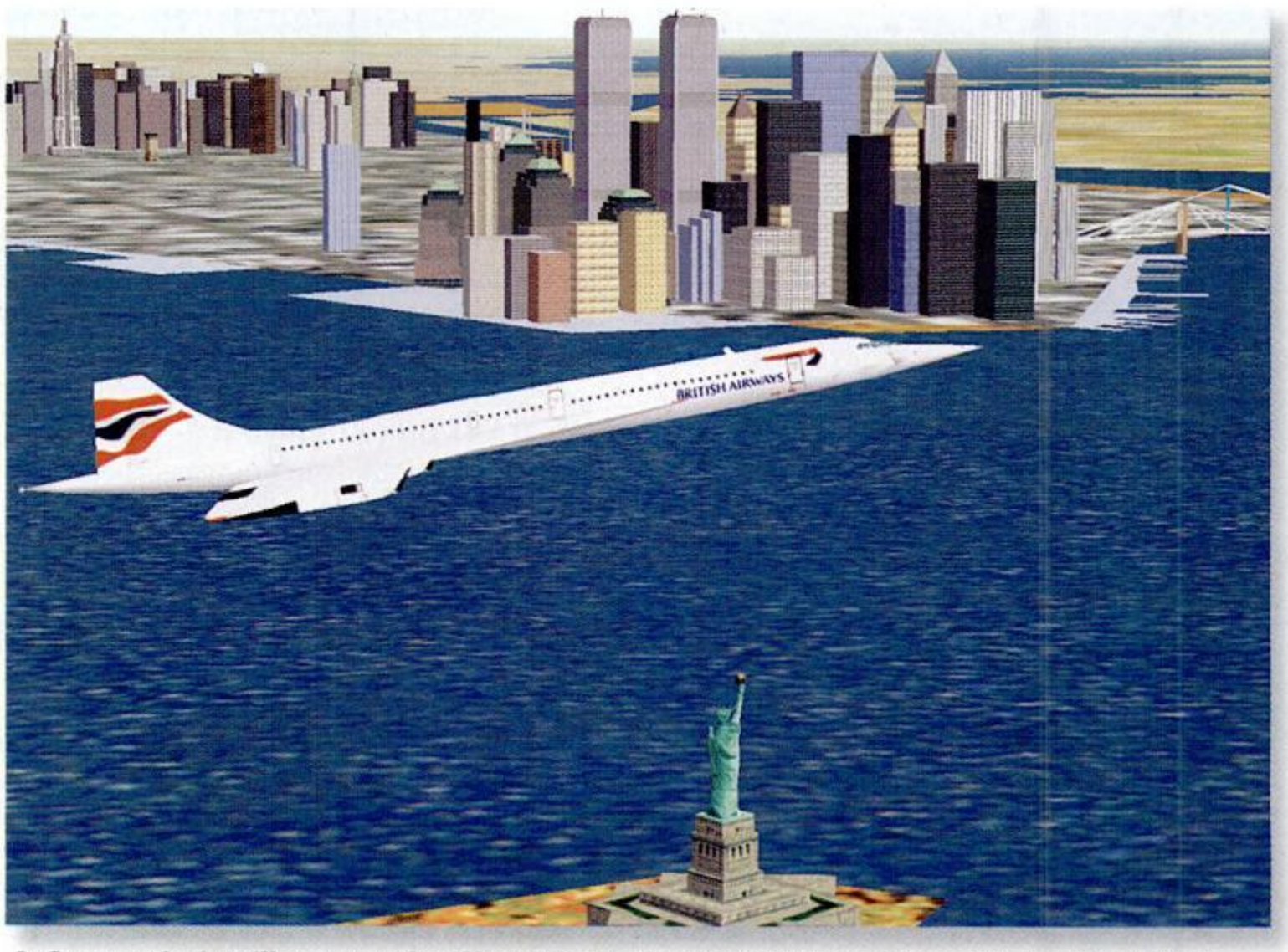
How September 11 Changed PC Gaming

Developers react with caution while gamers download with vengeance

It wasn't too long after Sept. 11 that Electronic Arts realized it had a big problem with the box art for *Command & Conquer: Red Alert 2*. The packaging, which was actually first produced in 2000, features an illustration of the World Trade Center under intense attack—explosions surround the twin towers, while a plane dropping paratroopers is headed straight for ground zero. EA asked retailers to immediately exchange the offending boxes for ones sans the buildings.

Red Alert 2 represents the most chilling example of fantasy preceding reality, but it isn't the only game that's been affected by the events of Sept. 11. Game publishers from Microsoft to Ubi Soft have delayed titles to make last-minute changes for the sake of good taste. Others pondered whether they could stomach any more violence in the aftermath.

Game developer John Romero says that ever since the attacks, he just hasn't been in the mood to create games with violent content. "Give me a few more months and I'll be able to create that kind of content," Romero says. "But anything having to do with terrorism—I think it'll take a while to get up the nerve to do one of those."



A Concorde jet flies past the World Trade Center in Microsoft's *Flight Simulator 2000*. Microsoft has released a patch to remove the WTC buildings from the game.

"We have always had, and will always have, a social responsibility to entertain but not violate or shock people," says Shiny's David Perry, who witnessed bombings as a youth in Northern Ireland. "We can depict anything, yet as an industry we choose to steer clear of racism, pornography, propaganda, and vivid depictions of pain and suffering. It's financial suicide for a company to spend a million dollars making a game that no store will stock, so it even goes beyond a moral choice. There is no choice—it's a self-solving problem. On top of that, our industry looks down very negatively on anyone who would even consider using tragic events like the New York attack as a basis of a game."

Peter Molyneux of Lionhead Studios concurs that restraint is typically self-imposed. "We've already seen a number of developers pull back from the development of violent games," Molyneux says. "I feel that anyone with a reasonable sense of decency would reconsider the sensitive nature of some content, but this should be a matter of conscience as opposed to legislation."

But is the public really as sensitive as game developers believe? And what types of games actually push our sensitivity buttons? In a *Maximum PC* online poll posted on Sept. 19, 60 percent of 1,100 respondents voted "now is the right time to develop, market, or play games with anti-terrorism themes." This leads us directly to *WTC Defender*, a game whose premise is to prevent suicide jets from smashing into the World Trade Center buildings. It's not clear if the game was created before or after the attack,

CyberExtruder.com's skin of Osama bin Laden lets people vent their frustrations. A President George W. Bush skin can fight against him.

Call it an "Osamasim." Why a sim Osama bin Laden? Apparently to torture, says the company that released it in response to popular demand.

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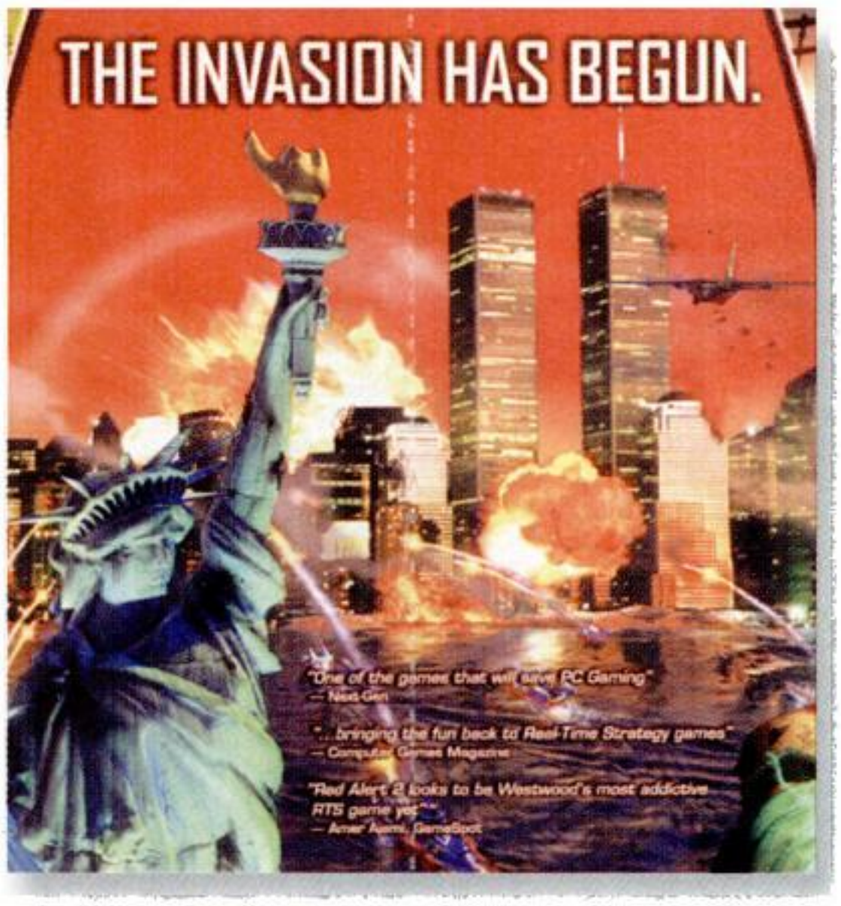
but it has been removed from the Internet, and nothing has been heard from the person who wrote it.

Some gamers are eschewing terrorism prevention and going straight for virtual vengeance. At CyberExtruder.com, a web site that helps gamers map their own faces onto playable characters, it didn't take long for someone to produce the ultimate target for *Unreal Tournament*. "[Our chief operating officer] was frustrated, so he made an Osama bin Laden character and started blasting it," says Larry Gardner, CEO of CyberExtruder. The character was soon making the rounds on the Internet, and demand for it grew so much, Gardner says CyberExtruder posted it on the company's web site (**www.cyberextruder.com**). CyberExtruder soon followed up with a model of President George W. Bush to fight bin Laden, and, oddly, a bin Laden for EA's *The Sims*.



Copies of EA's *Red Alert 2* were yanked from store shelves. The company says it will alter the box art so it no longer shows the WTC buildings.

Why create a bin Laden for such a laid-back, nonviolent game as *The Sims*? Gardner says gamers want the bin Laden sim so they can drown the mastermind of the attacks in a swimming pool or watch him starve to death in a locked-off room. Meanwhile, popularity of the *Unreal Tournament* bin Laden model has eclipsed models of Britney Spears and Arnold Schwarzenegger, with more than 110,000 downloads in just two weeks.

Bad taste, maybe, but it seems the public finds vengeance-based gaming tasty nonetheless.

Games Under Revision

Here's our list of all the PC games that have been changed in response to the Sept. 11 attacks. If you know of others, let us know.

■ **Microsoft Flight Simulator 2000** Microsoft has released a patch that will let gamers remove the World Trade Center buildings from the game.

■ **Microsoft Flight Simulator 2002** The company has postponed this sequel indefinitely. When it does ship, it will not include the World Trade Center, Microsoft says.

■ **Red Alert 2** Electronic Arts will change the box art of the *Command & Conquer* sequel, removing images of the New York skyline under attack. EA has also made a slight change to the *Red Alert 2* add-on pack, Yuri's Revenge.

■ **Tom Clancy's Rogue Spear: Black Thorn** This Ubi Soft title was delayed because of its counter-terrorist themes.

■ **Beam Breakers** This NYC-based driving game from Fish Tank Interactive will be pulled so developers can remove images of the World Trade Center.

■ **WTC Defender** It isn't clear whether this game was available before or after the terrorist attack. What is clear is that the subject matter—defending the World Trade Center from suicide jets—has been deemed inappropriate. The downloadable game has all but disappeared from the web.

▶▶ FAST FORWARD

BY TOM R. HALFHILL

IBM's CPU of the Future

There are dream machines, and there are DREAM MACHINES. At *Maximum PC*, we dream of gigahertz CPUs with gigabytes of RAM, neck-snappin' 3D graphics, and floor-thumpin' surround sound. At IBM, those dreams must seem as quaint as the vacuum tube.

IBM's new pSeries 690 server isn't something we'll ever buy, unless we chance across a lottery ticket worth $761,878 (the bargain price for a mid-range pSeries system). But the IBM POWER4 processor hidden inside the p690 is so awesome it redefines the CPU dreamscape. Want a peek at the possible future of PC processors? Take a close look at the POWER4 and try not to weep.

Sure, the POWER4 runs at just 1.1GHz to 1.3GHz. Big deal. But each POWER4 is actually two processors—two 64-bit CPUs with a triple-level cache: four internal L1 caches, a shared internal L2 cache, and a shared external L3 cache. Integrating two or more processors on a single chip is called chip multiprocessing (CMP), and it allows the processors to communicate much faster than separate CPU chips on a motherboard. Each dual-proc POWER4 chip contains a whopping 170 million transistors. Compare that to 42 million in the latest Pentium 4 and 37.5 million in the latest Athlon.

Wait, it gets even better: Just for fun, IBM crams four of those dual-proc chips into a single chip package. (The square black thing commonly called a "chip" is actually a package that contains the chip, which is more accurately known as a die.) So that means each POWER4 "chip" is really a multichip module (MCM) with eight CPUs and 680 million transistors.

Not enough, you cry? Well, a p690 server can have four POWER4 MCMs, which add up to 32 CPUs containing 2.7 billion transistors. And several p690 servers can be linked together into a supercomputer with more than 1,000 CPUs.

Of course, all this comes at a price, and not just in dollars. A mid-range 16-way p690 server gulps about a kilowatt of power, about as much as the average American home. (A popular peripheral will be stock in the local electric company.) Also, you wouldn't want to scratch-build this system. Each POWER4 has 5,500 pins and requires 700 pounds of insertion force. To install this monster in the CPU socket, you'd have to get three pro football players to stand on it.

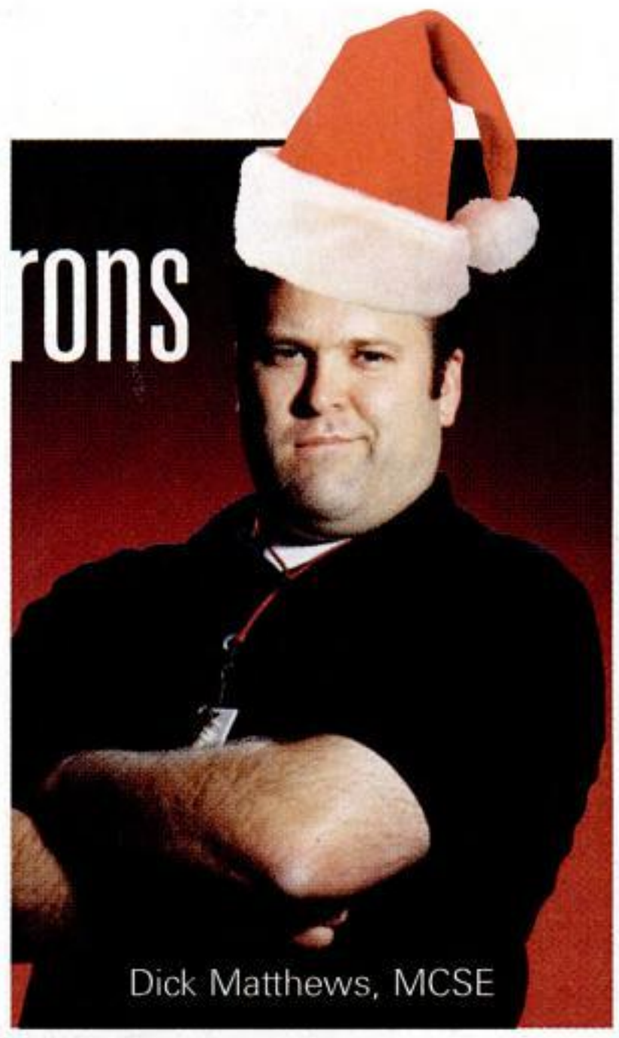
How fast is the POWER4? The SPEC benchmarks will be published soon. Meanwhile, let's just say it's way faster than the CPU of your dreams.

Tom Halfhill was formerly a senior editor for Byte *magazine and an analyst for* Microprocessor Report. *He is now a technical writer/analyst in Silicon Valley.*

HELPFUL HINTS

Windows Tips for Morons

Here comes jolly ol' Saint Dick


Dick Matthews, MCSE

This is my favorite time of year because I have carte blanche to do anything I want to the PCs at my office. That's right: When all the schmucks go home to be with their families and gorge themselves on turkey and ham, I have the greatest gift of all—10 days to overhaul hundreds of subservient, non-judgmental PCs, all waiting for the warm caress of my therapeutic hands. No back talk, and no sideways comments about my plumber's ass. So have a good time eating your figgy puddings, you smarter-than-thou cubicle drones. And don't forget to air out your filing cabinets once you get back to the office. Dick left a special present for each and every one of you. Now onward to your pre-Christmas stocking stuffers...

One of my moles at Microsoft just sent me a tip that all Windows XP users will appreciate. One of my favorite WinXP features is that the OS moves the important parts of your commonly used applications to faster sections of your hard drive to decrease application load times. The only catch is that it does this just every three days. Or does it? To kickstart the disk optimization, go to the Start Menu, click Run, and type **Rundll32.exe advapi32.dll,ProcessIdleTasks** in the window, then press OK. Your computer won't seem to do much, but you should experience some increased hard drive activity, as it immediately reorders your apps on the drive. This will also start any other tasks the OS has scheduled, such as downloading automatic updates.

And here's a tip that'll shave precious seconds off your WinXP boot time. Go to **www.microsoft.com/HWDEV/fastboot/** and download *bootvis*. This handy-dandy utility will look at all your slow-loading driver and system files, and optimize them for a sub–30 second boot. Note this doesn't apply to all the wusses who have IDE RAID arrays, which do nothing for your PC but add 10 seconds to your boot time.

This month's bonus tip: Don't eat undercooked ham. Live it and learn it, you miserable pukes. I'll see you dumbasses after the holidays.

Hewlett-Packard Cuts Printer Wires

HP is prepared to cut the wires of some of its printers—and, no, this isn't an idle threat. The company is offering a new print server that exclusively uses an 802.11b, or Wi-Fi, adapter. The $300 device hooks up to several different HP printers through the parallel port and lets multiple computer users (even scurvy Mac heads) print to the device through the wireless network. This fall, HP will also introduce the $400 Deskjet 995c with built-in Bluetooth support. Finally, HP has begun shipping a $130 parallel port–based Bluetooth adapter that works with many of its printers. Moral of the story? Bluetooth vapor is finally condensing.

FUN-SIZE NEWS

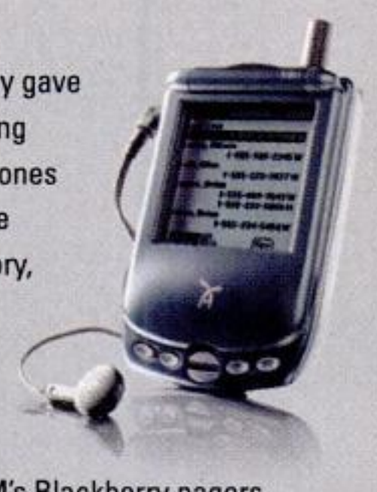
Intel Eliminates Bumps; Preps for 20GHz

To pave the way for 20GHz CPU speeds, Intel says it has developed a Bumpless Build-Up Layer technology (BBUL) for its processor packaging. Unveiled this fall, the technology essentially "grows" the packaging around a silicon chip and uses high-speed copper to connect the packaging directly to the CPU die. This contrasts with the current chip packaging process, in which a chip is manu-factured separately and later bonded to its ceramic or organic packaging. BBUL will let Intel build thinner chips that consume less power, and help the company realize plans to cram 1 billion transistors in a single, 20GHz CPU core. For more info, see the Oct. 8 press release at **http://appzone.intel.com/pressroom/index.asp**.

Smarter Batteries Coming

With no magic bullet for improved battery chemistry on the horizon, the only way to keep a notebook computer running longer may be to extract more juice from existing battery technologies. PowerSmart says its new Accuron technology will allow notebook manufacturers to run their cells down to 5 percent of capacity. Current battery-monitoring chips cut off power when a battery reaches about 20 percent, according to PowerSmart. PowerSmart says Accuron technology will ship by the first quarter of 2002. For more info, go to **www.powersmart.com**.

A Trio of Treos



Handspring, which practically gave away its Visorphone, is making another go at PDA-based phones with the new Treo series. The Treos feature 16MB of memory, Palm OS, and dual-band GSM phones. The Treo 180 (pictured) features an integrated keyboard very similar to those found on RIM's Blackberry pagers. The Treo 180g adds Graffiti input, while the Treo 270 adds a color screen. The 180 and 180g are due in the first part of 2002, while the 270 is slated for the middle of next year. All three will support web browsing over the GSM network and can be upgraded for newer and faster GPRS networks.

Mobile P4 Goes DDR

Intel has announced plans to introduce its mobile Pentium 4 at 1.5GHz and will dump RDRAM in favor of 200MHz DDR SDRAM for its notebook effort. The mobile P4 is supported by Intel's 845MP mobile chipset and is based on Intel's new 0.13-micron process. The die shrink will allow Intel to run the chip at higher speeds and lower temperatures. By the middle of 2002, Intel expects to push out 2GHz versions of the notebook chip.

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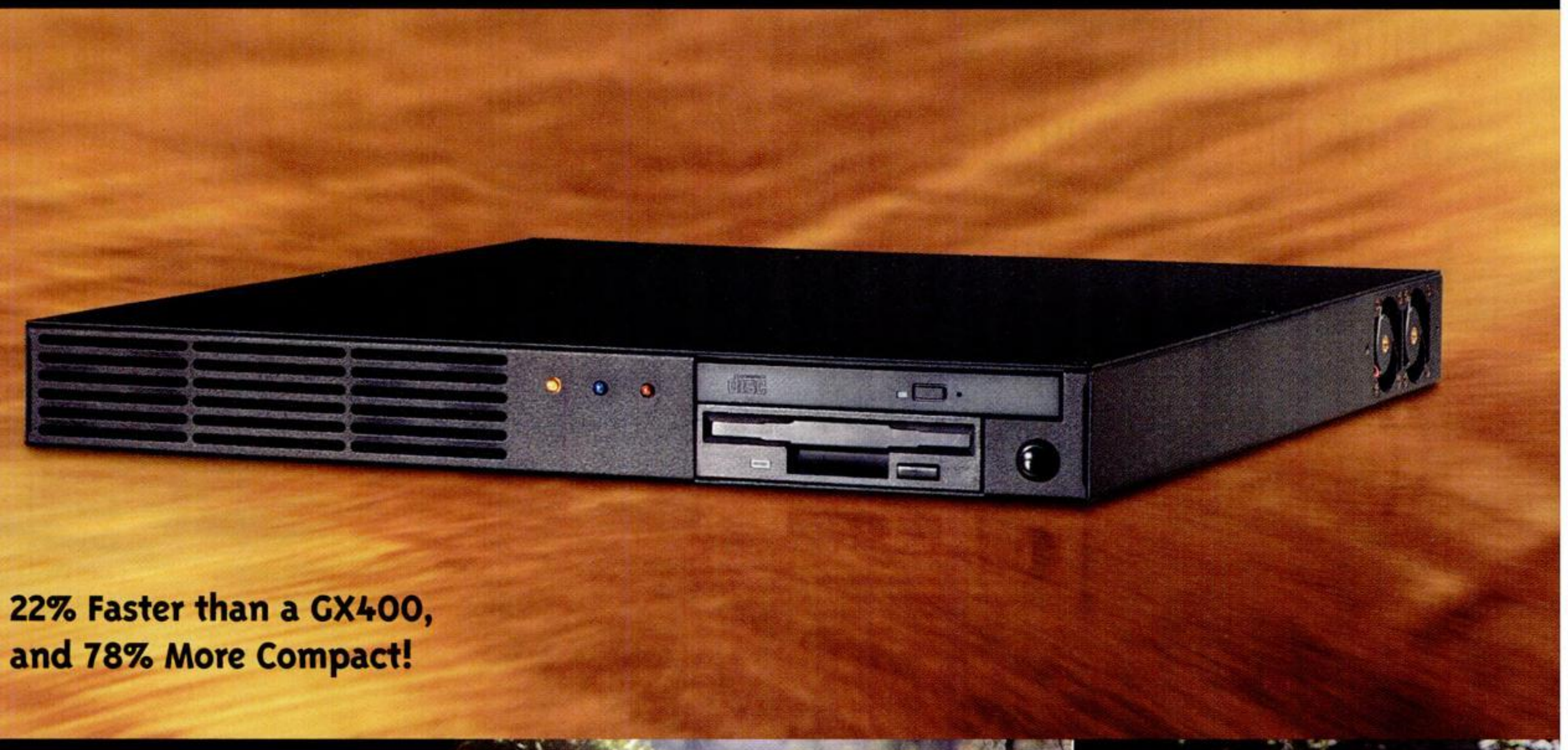

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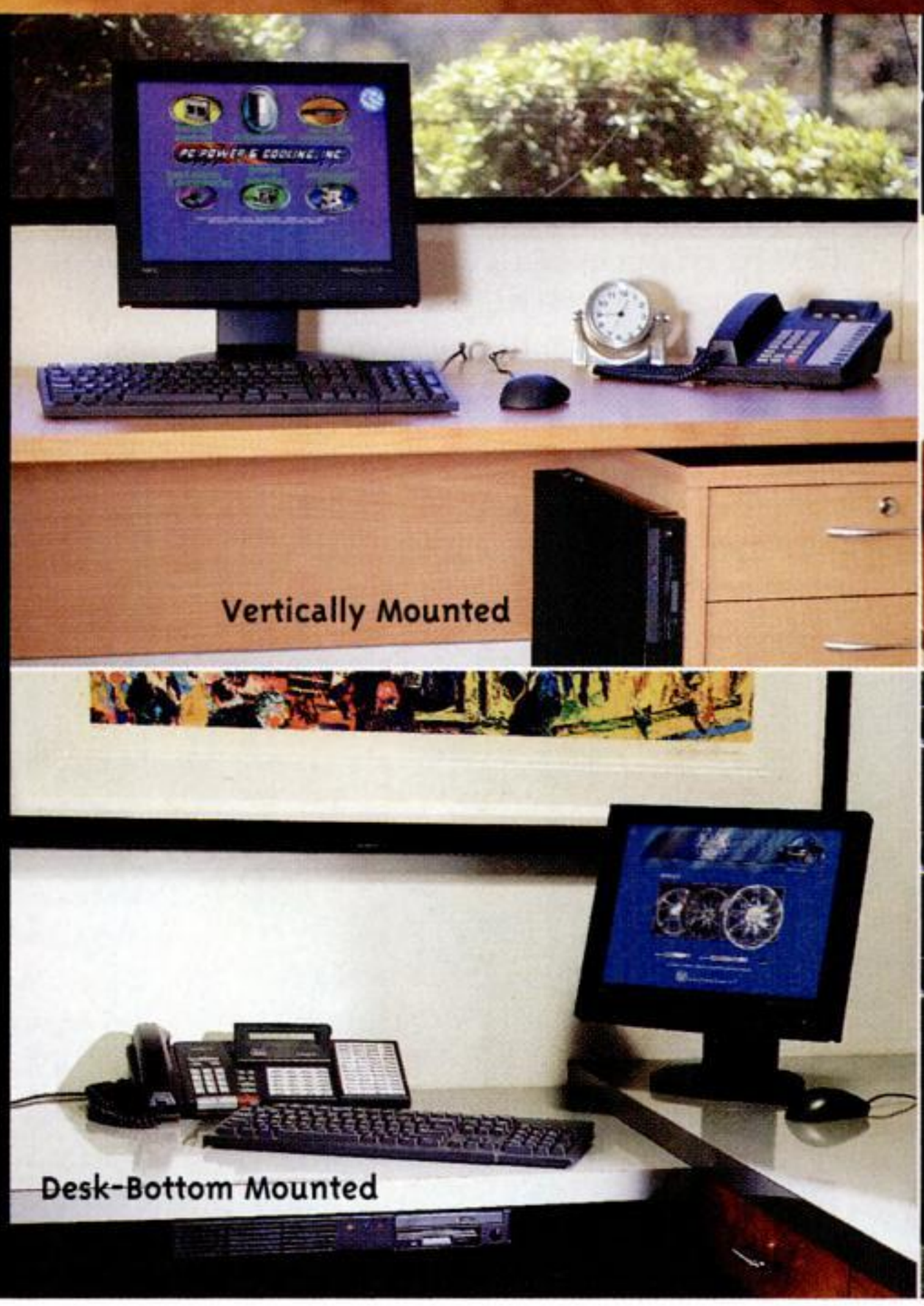

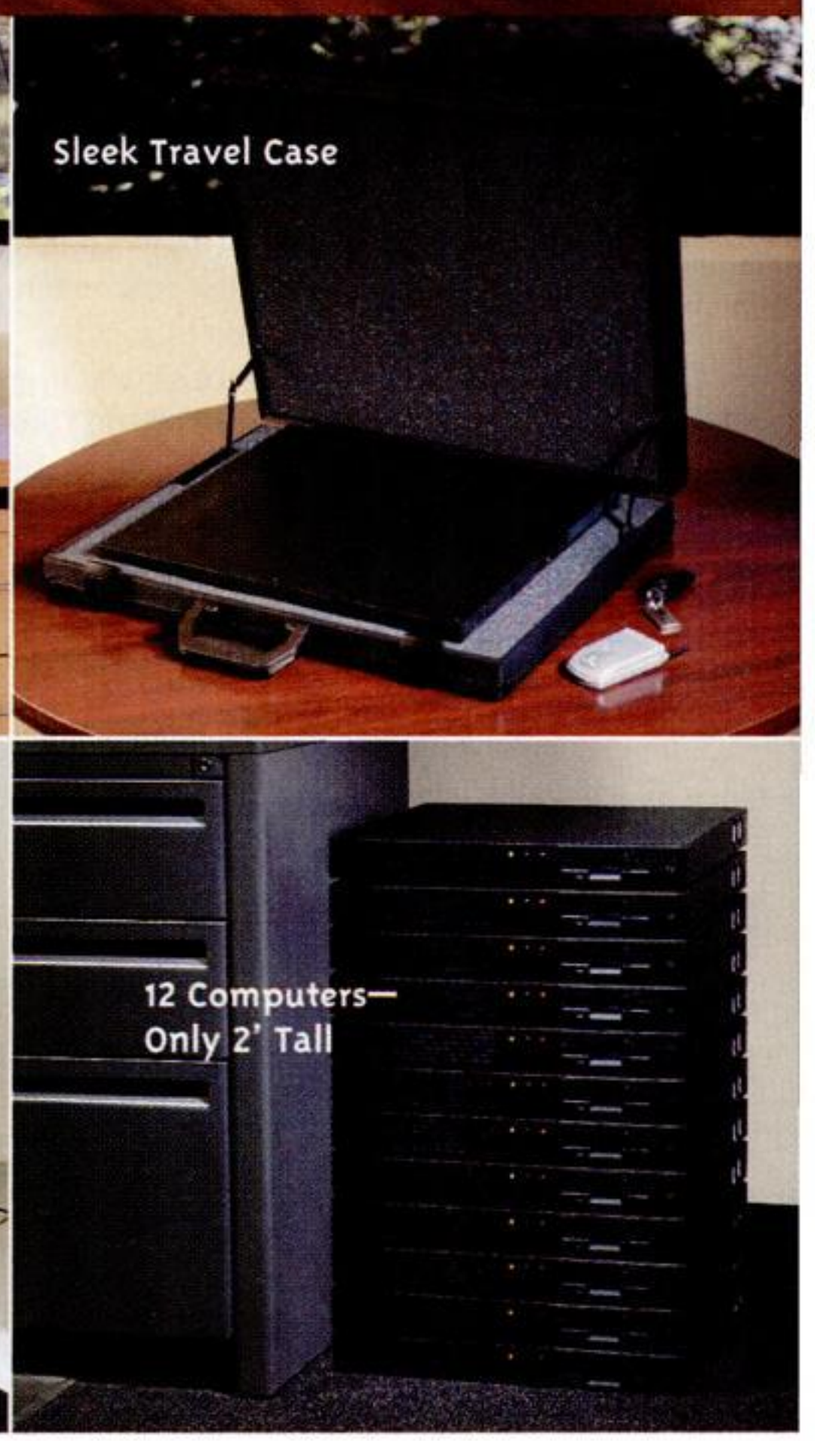

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Online 3D Gaming Segues From Laughable to Laudable

Betty Bad

If you sat in front of a PC running *Betty Bad,* you'd swear the game was installed on the machine and grabbing data from the rig's CD-ROM drive. But no, think again. *Betty Bad*—a third-person shooter featuring a babe who blasts through tunnels—actually streams over the Internet and uses the same DirectX 7 APIs employed by today's hottest disc-based PC games.

Of course, downloadable games aren't big news. Rudimentary puzzle and sprite-based arcade games have been available online for years. What makes *Betty Bad* and other games from WildTangent (**www.wildtangent.com**) so remarkable is that they approach no-compromise 3D affairs. They also show the world that after two years of development, WildTangent's Web Driver technology means business.

Hewlett-Packard will soon be shipping PCs with preloaded links to the best WildTangent-based games. Add the fact that a good chunk of WildTangent's development team used to work for Microsoft's DirectX team, and you just might have the makings of something big.

So how does WildTangent's Web Driver technology work? Well, instead of FTPing you a fat, bandwidth-clogging executable, host sites send you a compressed set of textures, geometry information, and audio. Your PC then decompresses the data—taking full advantage of your often underutilized CPU—and accelerates it with your existing DirectX videocard and soundcard.

Most of WildTangent's games require little more than a 1MB or 2MB initial download. Once you get going, more data can stream into your computer while you play. Perhaps most importantly, the technology allows the seamless integration of additional levels and content. WildTangent says this might spell the end of the $50 single purchase—in the future you might pay $1 per "session" or $5 for every new level a game developer can produce.

As amazing as *Betty Bad* actually looks—in visual complexity, it rivals some CD-ROM-based games of 18 months ago—its producer, Paul Steed, doesn't think WildTangent will immediately convert everyone. "These games won't replace CD-ROM games until the bandwidth gets better," says the former id Software guru. Nonetheless, Steed adds, "I definitely think hardcore players will take a look and then do a double-take."

WildTangent's upcoming *Betty Bad* pushes online gaming to a new level.

GAME THEORY

BY THOMAS L. McDONALD

OS-nuking Game is Bestseller

■ **PC gamers are a hardy lot, ready to charge into the breech no matter the danger. What else could explain the debut of the potentially OS-nuking *Pool of Radiance?* The game hit the No. 1 sales slot the week of its release, stealing the lead from *The Sims,* a title that, along with *Rollercoaster Tycoon,* has taken up permanent residence on the top 10 list. Ubi Soft has publicly apologized for the huge bugs, stating its intention to fix and fully support *Pool.* The company has verified only seven instances of systems ruined by uninstalling the game, a problem that may be tied to the presence of memory-resident disk utilities such as *Norton.* A patch to address many of the issues was rushed out within a week of release. Ubi Soft is reportedly wary of its PC division; its experience is largely with console titles. The problematic launch of *Pool* apparently spooked the company enough for it to seriously reconsider the future of its PC line, so this solid chart placing should smooth the corporate waters for future computer games.**

■ **Chances are you missed the PC port of Sega's Dreamcast oddity *Typing of the Dead,* released by stealth publisher Empire. The true limits of Japanese-console-game-design strangeness have yet to be reached, but *Typing of the Dead* gets pretty close to the edge. This retooling of the classic light-gun shooter *House of the Dead* replaces all the lethal weapons with things like rubber mallets and toilet plungers. But that's not the bizarre part. Instead of shooting at the bloodthirsty zombies as they approach, you speed-type phrases that pop up on the zombies' chests. It's a typing tutor! With zombies! *Mavis Beacon* meets George Romero. Expect to see more high weirdness as Sega starts to develop for other platforms.**

■ **To call EA.com's over-hyped and underwhelming monstrosity *Majestic* a train wreck would be unfair to train wrecks. Of those gamers who showed an interest in *Majestic* by beginning download and registration of the interactive game, only 8.5 percent bothered to complete the process. EA attributes this to the time-consuming and convoluted sign-up process, which necessitated lengthy downloads. Eight episodes were planned, but only five were completed. Another batch was slated for a "second season" in 2002, but the colossal failure of the first batch leaves its future in question. In order to recoup the losses, EA has decided to box the first episodes of *Majestic* and sell the package for $40 retail.**

Tom McDonald has been covering games for countless magazines and newspapers for 11 years. He lives in the New Jersey Pine Barrens.

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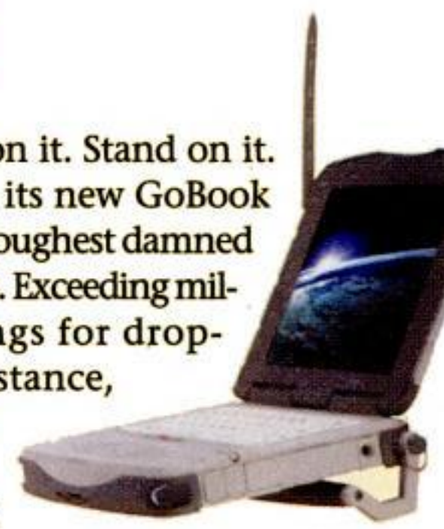
Sony Takes a Run at PC Convergence

Whatever you do, don't call it a PC, because Sony is trying to *de*-emphasize the PC portion of its new Sony VAIO everything box. The VAIO MX is a TV, DVD player and recorder, CD player and burner, FM radio, PVR, and MiniDisc player (whew). Throw it all in one pot, and you've got what the company describes as an "AV convergence machine." Need a front-mounted PC Card port for Compact Flash or Smart Media? Check. Memory Stick port? Check. Front-mounted FireWire? Check.

The PC—*there,* we said it—ships with a remote that lets you control all the multimedia features, as well as shut down and start up the machine without touching the keyboard. Just like *Maximum PC*'s Entertainment Center dream machine, the VAIO MX lets you record TV broadcasts, then burn them to a DVD that can be played in most consumer DVD decks. The VAIO MX will ship with a 1.7GHz Pentium 4, 512MB of PC133 memory, a GeForce2 MX, an 80GB hard drive, and a pair of bookshelf speakers for $2,800. Sounds like the perfect PC for the bedroom of tomorrow.

Toughest Notebook in Town



Drop it. Spit on it. Stand on it. Itronix says its new GoBook MAX is the toughest damned notebook in town. Exceeding military-spec ratings for dropping, water resistance, dust, and vibration resistance, the GoBook MAX is actually classified as "ultra-rugged." A built-in wireless antenna supports CDPD or Wi-Fi. The notebook packs only a 700MHz Pentium III and 20GB hard drive, but the interior is so well shielded, it can be thrown down the hallway with nary a scratch (and believe you us, we can't wait to test it). Itronix says you can even set the GoBook MAX on the ground in an A-frame position and stand on it! All this ruggedness doesn't come cheap, though. A GoBook MAX should run nearly $6,000.

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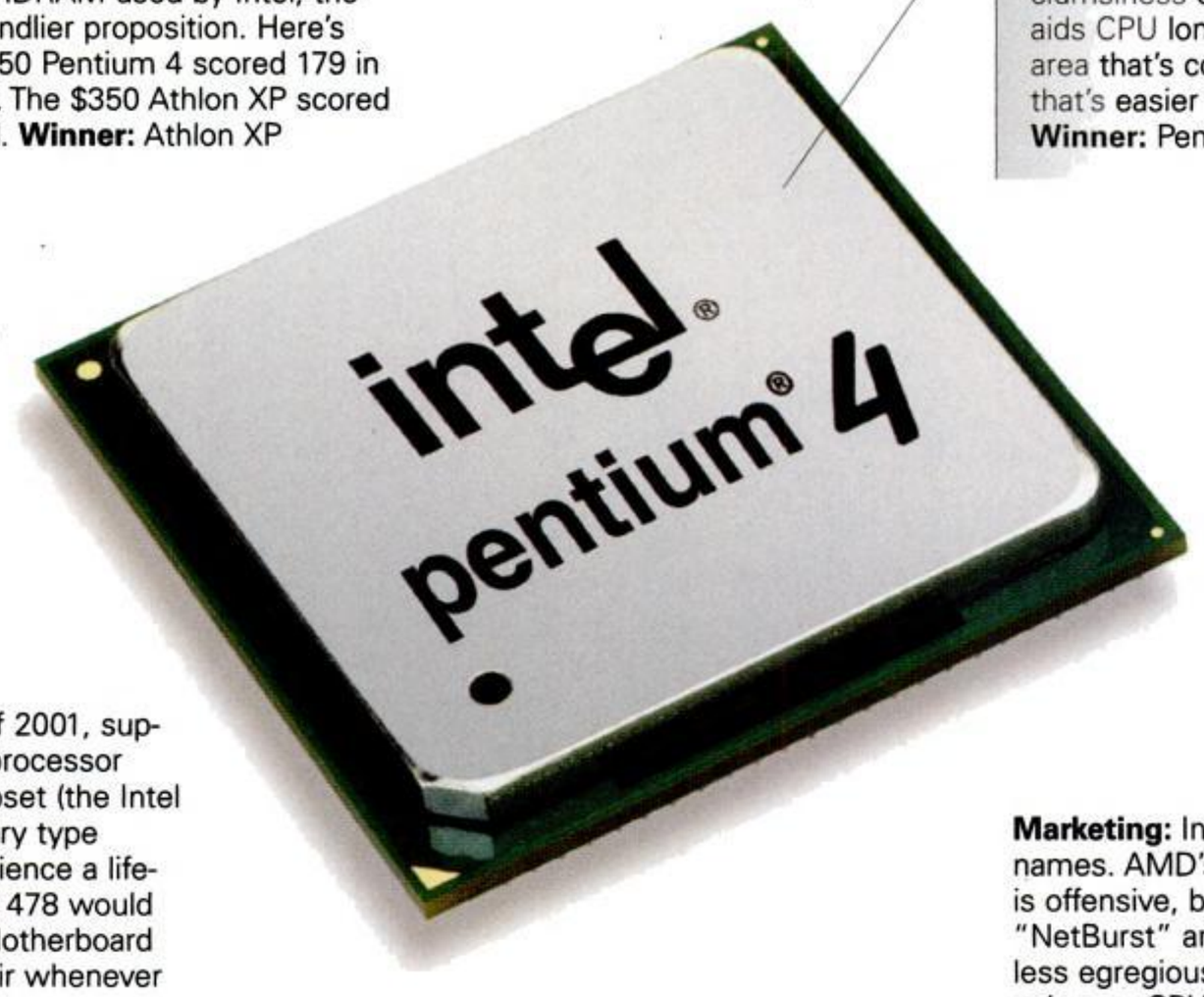
Head2Head

A showdown among natural competitors

INTEL PENTIUM 4 2GHZ

Price: The 2GHz P4 is damned cheap—for an Intel CPU, that is. Sure, it's priced at $550, but that's a steal, considering a 1.13GHz Pentium III cost about $990 in 2000. Bravo, Intel—now keep on going until you join the land of the fair and reasonable. The fastest Athlon XP costs $200 less than the fastest P4 and is very close in performance. Even worse, when you factor in the price difference between the DDR memory used by AMD and the RDRAM used by Intel, the Athlon XP becomes an even friendlier proposition. Here's another way to look at it: The $550 Pentium 4 scored 179 in *SYSmark2001*—that's $3 a point. The $350 Athlon XP scored 174—that's $2 a point. 'Nuff said. **Winner:** Athlon XP

Durability: Intel is renowned for its portfolio of engineers who work on improving every facet of the PC, not just the CPU. The fruit of their labor is evident in the P4 platform's overall durability and construction. Each P4 features a nice slug of metal that functions as a heat spreader, so instead of exposing its delicate CPU core (which is what AMD does with the Athlon XP), Intel offers a platform that's more resistant to the clumsiness of hobbyists. The heat spreader also aids CPU longevity by increasing the surface area that's cooled. Add a CPU mounting system that's easier to work with and you have a... **Winner:** Pentium 4



Infrastructure: At the beginning of 2001, support for the P4 was pathetic. The processor was teamed with just a single chipset (the Intel 850), worked with only one memory type (RDRAM), and was about to experience a life-threatening socket change (Socket 478 would replace Socket 423). The result? Motherboard vendors hissed and raised their hair whenever the P4 approached. Flash forward to December 2001. PC133 is onboard; DDR support is coming. ALi, SiS, and VIA are rich in P4 chipset development. Socket 478 is established and in good graces. Oh, what a difference 11 months make. **Winner:** Tie

Marketing: Intel isn't without its lame names. AMD's "1800+" naming convention is offensive, but who's to say Intel's "NetBurst" architecture designation is any less egregious? To suggest that the company's new CPU core is somehow especially designed for web surfing—or that your web surfing actually needs supercharging—is beyond comprehension. Oh well, at least Intel isn't still hyping this twisted line of thought through TV ads. **Winner:** No one

PERFORMANCE

Let's get one thing straight—this isn't a referendum on which company has the strongest core architecture. If that were the case, we'd grab the two most closely clocked procs for a showdown, and the Athlon XP would likely win. No, this is a battle between each company's fastest shipping desktop product—and no matter how partisan you are, there's no arguing that the companies' fastest CPUs essentially run neck and neck. Factor in all the variables discussed on these pages and you still have a wash. Nonetheless, scrappiness does count for something, so we invite you to turn to page 28 for one of the hardest judgment calls of the year.

DARE to COMPARE	2GHz Pentium 4	1.53GHz Athlon XP
SYSmark2001		
Overall	**179**	174
Content Creation	**204**	174
Office Productivity	157	**174**
Applications		
High-quality MP3 encoding	**206 sec**	223 sec
Adobe Premiere 6.0	209 sec	**188 sec**
Adobe Photoshop 6.0.2	**75 sec**	79 sec

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THIS MONTH: Intel vs. AMD . . . Let's Get It On!

The Athlon–Pentium 4 debate boils the blood of CPU freaks everywhere. AMD backers argue that the Athlon is a work of engineering majesty, a CPU that runs neck and neck with Intel's finest despite a multi-megahertz frequency deficit. P4 backers, meanwhile, pooh-pooh the whys and hows, and cry that frequency speed *is* relevant because the fastest P4 has traditionally beaten the fastest Athlon in the benchmarks that matter.

But what about pricing, build quality, and upgrading infrastructure? Who wins these battles now that the P4 has been ratcheted to 2GHz and the T-bird Athlon has been replaced by Athlon XP? Below you'll find our subjective rulings. We also did our best to stage the closest thing possible to an apples-to-apples benchmark comparison, a difficult proposition considering the two CPUs use different system bus speeds and memory types.

—GORDON MAH UNG

ATHLON XP 1800+

Durability: If you have any hands-on experience with AMD's T-bird, Duron, and now Athlon XP procs, you know just how delicate those dime-size processor cores can be. Ever since AMD inverted its cores to aid in cooling, hobbyists have been smashing them by mistake when installing heatsinks to the faces of the CPUs. We're also annoyed by the general unwieldiness of AMD's socket assemblies. **Winner:** Pentium 4

Price: No contest here. Since the original Athlon was introduced, AMD has been winning the price war. Today's fastest Athlon XP (the 1.5GHz model 1800+) is expected to street for about $300 to $350. That's far cheaper than Intel's 2GHz P4. Combined with DDR memory (which is cheaper than RDRAM), Athlon XP offers the best bang for your buck. It is not only the pricing champion, but the price-to-performance-ratio champion. **Winner:** Athlon XP

Marketing: When AMD dropped the K7 code-name and officially called its new proc "Athlon," we doubted the new name would stick—and we were wrong. But we're absolutely sure AMD is stepping on wet doggy doo with its "Model 1800+" idea. It's supposed to suggest that its new 1.53GHz Athlon XP runs as fast as a 1.8GHz P4. This whole new nomenclature is a confusing mess. If AMD really wants to remind consumers that performance isn't all about megahertz, it should just come out and say so in unambiguous terms. **Winner:** No one

Infrastructure: If your CPU doesn't have support from the chipset and motherboard communities, your upgrading prospects will be slim. Which leads us to Athlon XP: While Socket A is still supported (and will be for quite some time), behind-the-scenes whispers suggest that some current Athlon Thunderbird mobos will be incompatible with Athlon XP unless resistors are changed. The same situation occurred when Intel segued from the Katmai core to the lower-voltage Coppermine core—some configs worked, others didn't. Otherwise, the infrastructure situation looks bright for AMD. The Athlon XP is supported by VIA's KT266A chipset, as well as silicon from ALi, SiS, and nVidia. Overall, AMD has more motherboard and chipset partners than ever before. **Winner:** Tie

DARE to COMPARE	2GHz Pentium 4	1.53GHz Athlon XP
3D Gaming		
3DMark2001 Overall	6998	**7005**
3DMark2001 Game 4 1280x1024	**23.1fps**	22fps
Quake III Arena MPC demo	**79.6fps**	76.1fps
SiSoft Sandra 2001		
Bandwidth FPU	**1544MB/sec**	743MB/sec
Dhrystone	3869	**4247**
Whetstone	**2463***	2108

** Using SSE2 extensions. Score dropped to 1041 with SSE2 disabled.*

P4 test bed: We built our own test bed, starting with the best P4 parts possible, then adding all the subsystems found in AMD's reference box. **CPU:** 2GHz P4 (SL5TL stepping); **mobo:** D850 MD (Intel 850 chipset); **RAM:** 256MB PC800 RDRAM (CAS2); **video:** Leadtek WinFast GeForce3 (200/230 clocking, v21.81 Detonator XP drivers); **hard drive:** IBM 60GXP Deskstar; **OS:** Windows XP Pro running NTFS file system.

Athlon XP test bed: We used the latest reference system direct from AMD; one would assume it represents the company's fastest consumer desktop effort. **CPU:** 1.53GHz Athlon XP 1800+ (AGKGA core); **mobo:** Gigabyte GA-7DX (AMD761 northbridge, VIA 686B southbridge); **RAM:** 256MB PC2100 DDR (CAS2); **video:** Leadtek WinFast GeForce3 (200/230 clocking, v21.81 Detonator XP drivers); **hard drive:** IBM 60GXP Deskstar; **OS:** Windows XP Pro running NTFS file system.

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The white water in the river.

The white lettering on the paddle.

The white splash of sunlight on the helmet.

The white knuckles on the fingers.

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WatchDog

Maximum PC takes a bite out of bad gear

Got a bone to pick with a vendor? Been spiked by a fly-by-night operation? Sic The Dog on them by writing **watchdog@maximumpc.com**. The Dog promises to get to as many letters as possible, but only has four paws to work with.

IBM Sued Over 75GXP Failures

Michael T. Granito Jr. knows that hard drives fail on occasion, but he felt certain something was amiss when not one, but *two* of his IBM 75GXP hard drives bit the dust.

It turns out Granito isn't the only person who's had problems with IBM's famed 75GXP hard drive series. The 75GXP enjoyed instant popularity by being the fastest hard drive available in its day, but its reputation has become sullied by a spate of reported failures.

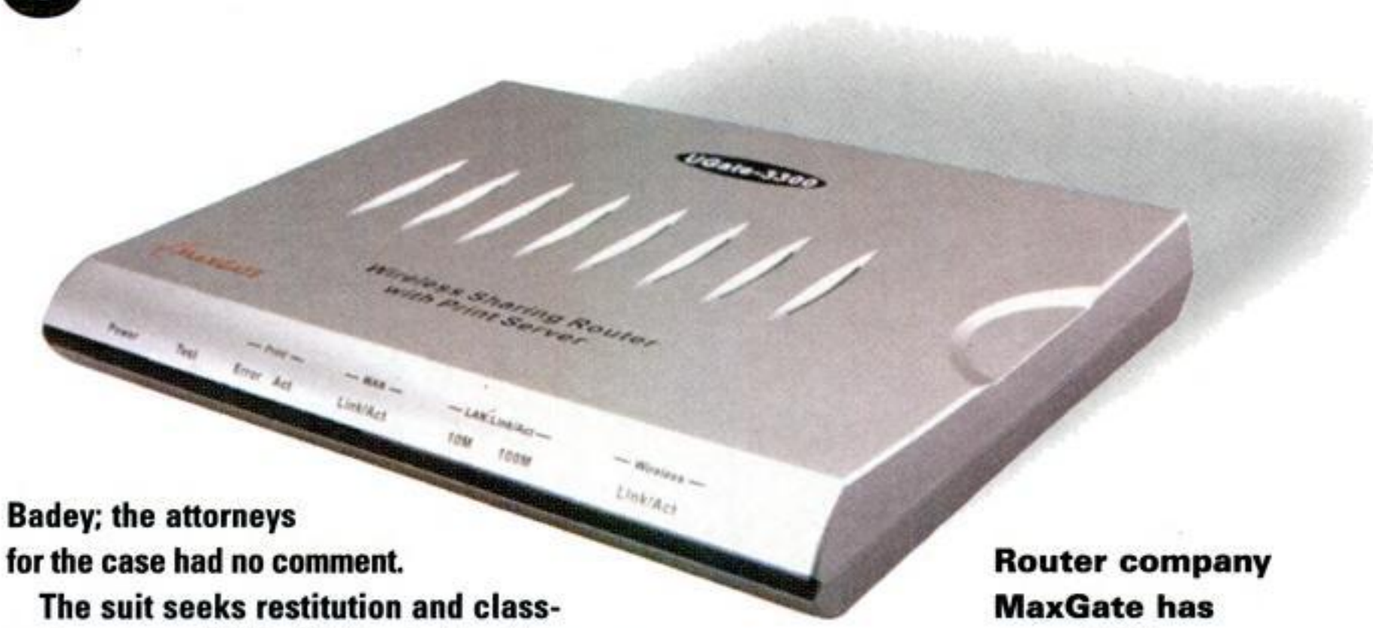
The Dog talked to IBM representatives several months ago about the 75GXP-related complaints, specifically those regarding the 45GB version. IBM officials said then they had not experienced a failure rate beyond normal for the drive and could not trace failures to a production problem or production run of the drives. The officials chalked it up to the hard drive's popularity—a greater quantity of drives results in a greater number of failures. They also attributed failures to the people who purchase the drives, speculating that power users push their drives to the limits of reliability. Unable to produce more than anecdotal evidence, The Dog let the issue lie.

"There is no excuse for a company not to support a current OS with a product that is currently shipping."

Fast-forward several months. Granito is now the primary plaintiff in a lawsuit that accuses IBM of violating three California consumer protection laws. Filed in the Superior Court of Alameda County in Oakland, Calif., the suit accuses IBM of misrepresenting the reliability of the drives. "IBM has represented to plaintiff and members of the class that the Deskstar 75GXP is a safe and reliable disk drive for accessing and storing data on a personal computer. To the contrary, due to a uniform defect in the design and/or manufacturing process, when such a defect manifests the Deskstar 75GXP 'crashes' without warning and results in the irretrievable loss of data and programs stored on the disk. Thus, the Deskstar 75GXP is unable to consistently and reliably access and store data," the suit alleges. The suit was filed primarily by the Philadelphia law firm of Sheller, Ludwig & Badey; the attorneys for the case had no comment.

The suit seeks restitution and class-action status. IBM officials declined to comment on the suit at press time because the company had not seen the suit, but did say the drive has been reliable and received praise from the industry and press.

The Dog is interested in hearing about your experiences with the 75GXP hard drive. Is it any better or worse than other models or brands you've owned? The Dog will report more on the 75GXP situation as it progresses. Woof.



Router company MaxGate has gone MIA.

No Max in MaxGate

After receiving a number of complaints from readers who were unable to get in touch with MaxGate for customer service support, The Dog was prompted to do some digging.

The Dog first sought comment from the public relations firm that represents the router maker. The PR firm, however, told The Dog that even though MaxGate continues to list the firm as a contact, MaxGate stopped using its services in July. The Dog then tried to contact MaxGate's former home company UMAX, but all calls regarding MaxGate were directed to MaxGate, which is a separate entity from UMAX. MaxGate, of course, did not respond to numerous phone calls seeking comment on the solvency of the company. E-mails to the sales department also went unanswered. With the status of MaxGate unknown, The Dog must relegate MaxGate to the Dog House and discourage all readers from purchasing the company's products. Watch this space for updates on the future of MaxGate. Woof.

The Drivers are Always Broken

DEAR DOG: I recently purchased a Pinnacle DC30 Pro Video Capture board. I had been running it with Windows NT and Service Pack 6 on my dual–850MHz Pentium III machine, but the lack of support for DirectX as well as other limitations led me to search for an alternative OS. I tried Windows 2000, but ran into too many problems. I finally got my hands on Windows XP before it was officially released. It worked great, but the board's drivers weren't fully supported by XP. I contacted Pinnacle Systems and was told they have no XP drivers planned for the DC30! This is not acceptable. I have never seen anything like this in all the years I've been working with computers. Windows XP is a multimedia OS first and foremost. There is no excuse for a company not to support a current OS with a product that is currently shipping. If the company can't support it, it should give us back our money. The excuse that XP wasn't shipping when I asked is getting weaker by the minute. Please lick some sense into these guys or bite them on the ass!

— JIM TOURVILLE

THE DOG RESPONDS: Jim wasn't the only person to complain about Windows XP driver support. Michael Yarbrough is equally miffed about a lack of XP drivers for his part. "I bought my Guillemot Maxi Studio ISIS soundcard for $300 two years ago," Yarbrough writes. "The card itself is great and still has a lot of features that newer cards do not. My beef is that Guillemot has told me on several occasions it will not make drivers for Windows 2000 or Windows XP. Guillemot blamed the Windows 2000 architecture for not allowing it to develop drivers for that OS; now with XP, the company says it has no plans to release drivers for this card. So I and many others who purchased the card are stuck running our music productions on unstable OSes like 9x or ME. If this were a $25 to $75 soundcard I could understand withholding support, but this card was a major purchase, and it's a key part of many studios. Guillemot should extend support for the card to Windows XP."

Yarbrough and Tourville are likely the first of many readers who'll discover that a piece of hardware they own will not work with Windows XP. Though Windows XP supports more hardware than previous versions of Windows did, it's unlikely to support a lot of the specialized hardware out there.

For many people, the real question is, How

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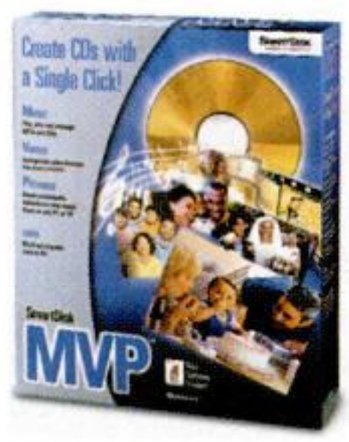

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Consumer Advocate

Danger, Will Robinson—these Compaq power supplies may cause fires!

long should a vendor support its hardware? It's more than reasonable to expect a vendor to support hardware for the first 12 months of its life. And support for up to two years even seems reasonable. Beyond that, the chances for support become increasingly more slim. The Dog talked to two leading hardware vendors about their policies on end-of-life products. Graphics chip maker nVidia has XP driver support for chips as far back as the Riva TNT. Creative Labs pledges driver support by the end of the year for cards as old as the Sound Blaster PCI 16, but will leave its older products to run with the drivers included with Windows XP. At press time, The Dog was still waiting for official responses from both Pinnacle Systems and Guillemot, which you'll see in a future column.

There are a few ways to check on your hardware before upgrading your OS. The first is to use Microsoft's Upgrade Advisor, which can be found at www.microsoft.com/windowsxp. This 50MB file checks both your software and hardware for compatibility with Windows XP. If you're averse to downloading a 50MB file via an analog modem, whip out your November Maximum CD. The Upgrade Advisor is included on that disc. Another approach is to visit www.microsoft.com/hcl/, where you can conduct a compatibility search for your piece of hardware. For example, the defunct Voodoo3 2000 is not supported in Windows XP, and since 3dfx is long gone from this planet, you can forget about finding functional drivers for the card.

While you might naturally assume there would be support for hardware that's on store shelves when XP debuts, bear in mind that store shelves are often stocked with hardware that's already two to three years old. If you're planning to run Windows XP, make sure there's current driver support before making a purchase.

This isn't a new situation, of course. It happens every time a new operating system comes out. Manufacturers choose to either make their existing customers happy or use the situation as a convenient excuse to finally kill end-of-life products. Some cold-hearted companies will also use a new OS release as an opportunity to force customers to upgrade to the latest piece of hardware. What's your opinion? Let The Dog know what you think is a reasonable period of time to expect hardware driver support from companies, and The Dog will let companies know what you think. Woof.

Recall Alert: Compaq's Notebook Adapters are Burning

Compaq Computer has recalled about 1.4 million AC adapters for notebook computers because they're at risk of overheating and catching fire. Compaq says it has received reports of five fires that started inside the adapters. According to news reports, the electrical arcing inside the adapters caused the cases to deform and could possibly start external fires. No injuries resulted from the five overheated adapters.

The adapters were sold between September 1998 and July 2001 with notebook computers that cost from $999 to $4,399. The adapters were sold with the following models: Armada M300, Armada 3500, Armada M700, Armada E500s, Armada E500, Prosignia 170, Armada V300, Prosignia 190, Armada 100s, Armada 110, Notebook 100, and Presario 800 (which was sold only in South Korea). If you own one of these notebooks, examine your power supply. Directly below the Compaq Computer Corporation label you should see "Model Series" followed by a sequence of letters and numbers. If the sequence is PPP003SD, PPP003, or PP2012, your power supply is affected. The model series should match exactly. If your model series is PPP003S, for instance, it is not affected. If your adapter is on the list, immediately unplug the power supply and AC cord from the wall and contact Compaq at 888.302.7689 between 7 a.m. and 7 p.m. CDT, Monday through Friday.

Of the 1.4 million adapters affected, about 594,000 units were sold in the U.S. Compaq says it will exchange the adapter for a new one. Visit www.compaq.com for more information on the recall. ■

"For many, the question is, How long should a vendor support its hardware?"

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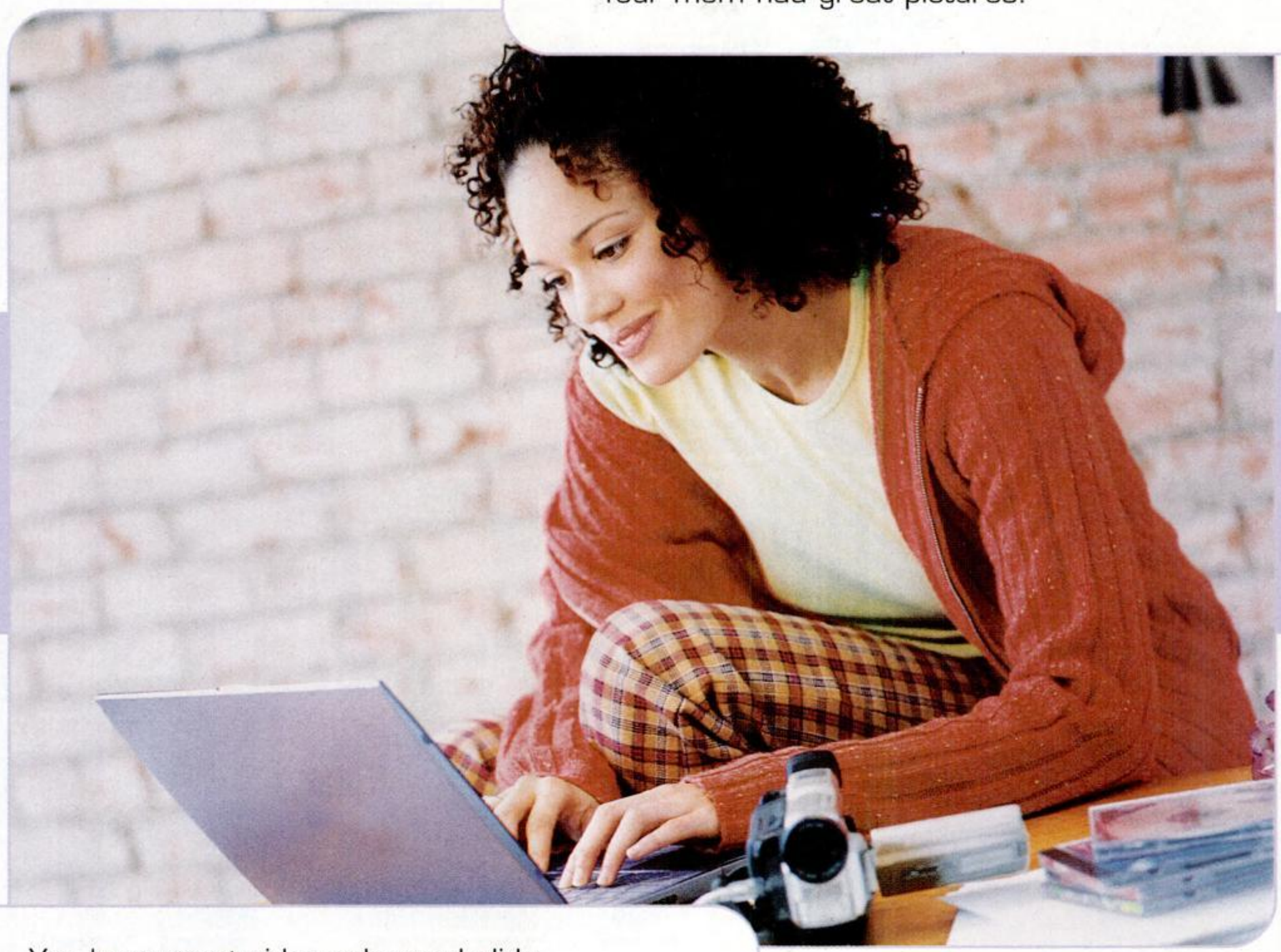
Your mom had great pictures.



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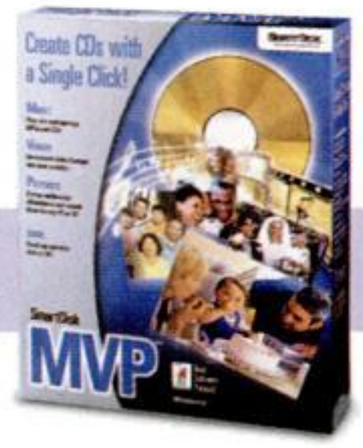

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GAME OF THE YEAR

GEAR of the YEAR 2001

The debates are over and the votes are in. We proudly present our picks for the best PC hardware of the year.

Throughout the year, we ask manufacturers to send us the cream of their crops, the latest and greatest hardware that power users just can't do without. When the gear arrives in our Lab, we put it through a humiliating gauntlet of tests, and if it passes—well, that's only the beginning.

At the end of the year, we pit the biggest, boldest, and best products against each other, then declare a winner for each component category. While we admire innovation, creativity, and low pricing, it's pure performance that matters most. Only the hardware that truly deserves to be called Gear of the Year makes it onto these pages.

Of course, almost none of our choices were unanimous, so on the following pages you'll also find the dissenting opinions of maverick editors who made strong cases for their own nominees. Also, keep in mind that not all of this year's winners were officially reviewed as stand-alone products in the reviews section of the magazine. However, you can rest assured we prodded and tested every winner with our own grubby paws during the course of our Lab shenanigans.

Ready to roll? Good. Kick back and check out which gear rose to the top...

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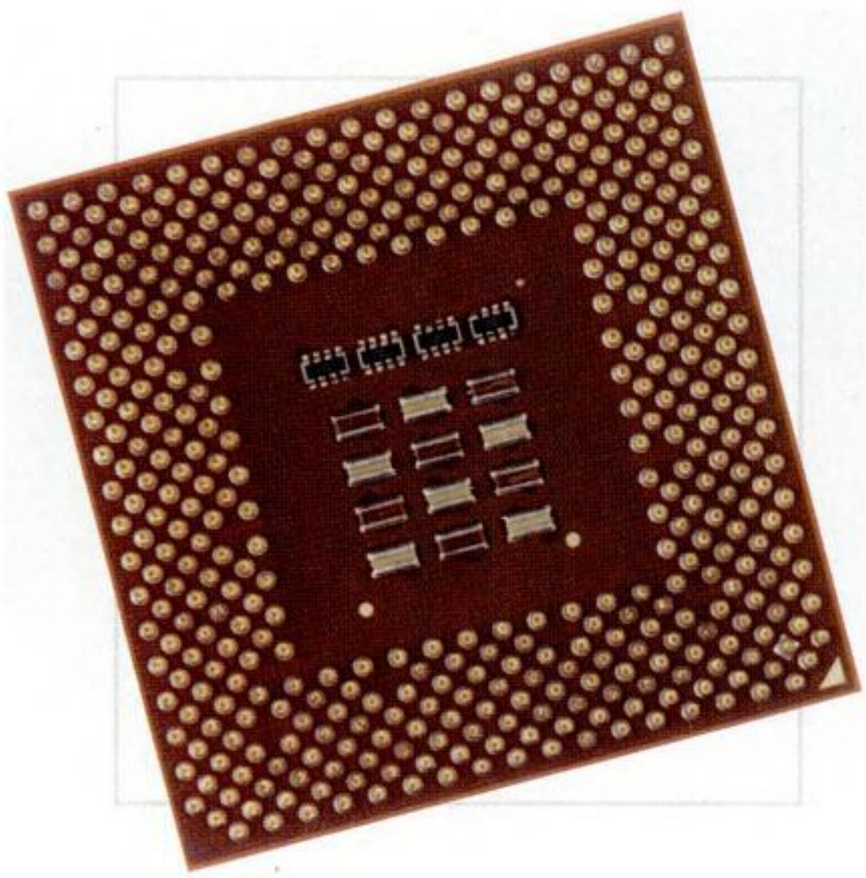
INTERNAL HARD DRIVE

IBM 60GXP
Sure, there are higher-capacity drives on the market, but none matches the technological majesty of the 60GXP. Typical hard drives might require five individual drive platters to reach 60GB, but by increasing areal density—in other words, the amount of data that can fit on one square inch of a drive platter—IBM packs an unprecedented 60GB on just three platters. But here's the beautiful thing: Because it has to traverse just a relatively small expanse of surface area, the 60GXP's drive head—shown here in stunning detail—skips around very little while reading and writing data, which translates into faster transfer rates, lower spin-up times, and less power consumption. We were awed by the drive's record-breaking average transfer rate of 38.4MB/sec, which climbed to a dizzying 45.5MB/sec when paired with Promise's FastTrak 100TX2 IDE RAID controller in a RAID 0 config. Now that's pushing the envelope! ***$187; www.ibm.com; featured in August cover story, but not yet officially reviewed***

DISSENT "Size does matter, and Western Digital's 100GB drive uses just slightly less impressive technology," says Logan Decker.



CPU

AMD Athlon XP Model 1800+
The Pentium 4 seemed like the easy winner—until our debates began. When all was said and done, we finally landed on AMD's new Athlon XP 1800+ for offering 2GHz P4–like performance while drastically undercutting Intel's pricing. You do the math: Both procs offer similar performance (see page 21), but the Athlon XP costs about half as much and runs at just a 500MHz frequency deficit. When there's no clear speed winner, pick the most compelling technology—that was our mantra for Gear of the Year 2001. ***$252, www.amd.com; featured on pages 20–21***

DISSENT: "No matter how you cut it, some very compelling apps support the P4's SSE2 instructions," says Katherine Stevenson.

CASE

Cooler Master ATC-101
Cooler Master's first pure-aluminum case has five full-size front-bezel drive bays and room for up to four internal hard drives—and by positioning a single 80mm fan near the front, the case allows air to be sucked through a bottom vent directly onto the drives. The motherboard tray is removable and "Pentium 4" ready, but our favorite feature of the ATC-101 is the solid billet of aluminum that's used to hide two front-mounted USB ports. The case is sexy, light, and holds a ton of drives. What's not to like? ***$290; www.coolermaster.com; not yet officially reviewed***

DISSENT: "I cream over the ATC-101, but I would have preferred Cooler Master's ATC-110 because it's designed to handle extended ATX motherboards such as Tyan's Thunder K7," says Gordon Mah Ung.

GEAR of the YEAR 2001

3D ACCELERATOR CHIPSET

nVidia GeForce3
With a design that eschews the traditional, inflexible 3D pipeline for one that game developers can use to customize special effects, the GeForce3 ushers in an entirely new way to render 3D images. The result? Nearly Hollywood-quality graphics in PC games. By using programmable shaders, the chipset allows GeForce3-powered PCs to produce realtime reflections on bump-mapped surfaces, an effect that would have required a renderfarm to complete just one year ago. The GeForce3 graphics processor is available in several different clock speeds and memory configurations and is found in videocards from Hercules, Elsa, Visiontek, and Leadtek, among others. ***$350 (for most GeForce3 videocards); www.nvidia.com; Visiontek's GeForce3 (pictured) received a 10 verdict and Kick Ass Award in June***

DISSENT: "The R200 chipset in the Radeon 8500 is more powerful than the GeForce3, but remains unproven. We're waiting for the driver situation to stabilize," says Will Smith.

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MOTHERBOARD

Tyan Tiger MP S2460

Tyan's new Tiger MP board is the definitive platform for a new era of hot CPU-on-CPU action. For a little more than two Benjis, you get a mobo that runs two Athlon MP CPUs past 1.2GHz, supports up to 3GB of DDR PC2100 memory, and has six PCI slots, four of which are 64-bit. In short, Tyan jettisoned the features that bloat other motherboards to provide a slot-rich environment from which you can sculpt your own Dream Machine. ***$250; www.tyan.com; not yet officially reviewed***

DISSENT: "Intel lovers will want to check out ASUS's new P4Te, which features Socket 478 support, overclocks like a mofo, and will support the upcoming Northwood Pentium 4," says Gordon Mah Ung.

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CD-RW DRIVE

Plextor PlexWriter 24/10/40

We don't call it "Sexy Plexy" for nothing. Plextor's new baby is the fastest burner we've ever tested in both CD-R and CD-RW recording. But it's not just the speed we're crazy about. What really makes the PlexWriter stand out in a crowd is the way it cheerfully and competently takes on just about any task you can throw at an optical drive. Digital audio extraction, scratched media reading, and even disc duplication—it does it all with blissful ease, without the hiccups or failures of other high-speed drives. In fact, the PlexWriter 24x is so great, even cranky Will Smith couldn't come up with a dissenting opinion! ***$270; www.plextor.com; received a 9 verdict and Kick Ass Award in November***

DVD RECORDER

Pioneer DVR-A03 Recordable DVD/CD Combo

The first time we played a DVD recorded with Pioneer's DVR-A03 on the oldest stand-alone DVD movie player we could find, we thought: *This changes everything*. While other vendors were blowing smoke out of their asses about recordable DVD products that never arrived, Pioneer delivered a drive with 2x DVD write speeds, compatibility with set-top DVD boxes (even for rewritable DVD media), and support for CD burning, as well. The DVR-A03 is quite possibly the most revolutionary product we've seen all year. ***$650; www.pioneerelectronics.com; received a 9 verdict and Kick Ass Award in July***

GEAR of the YEAR 2001

NEWS OF THE YEAR

Now, to recap for all the readers who've been playing *Counter-Strike* morning, noon, and night for 12 months straight, we give you the PC news highlights of 2001.

■ In January, a patent filed by inventor Dean Kamen sparked a blaze of online gossip and speculation—and thus the madcap Ginger craze was born. Patent US5971091 describes "a transportation vehicle for transporting an individual over ground having a surface that may be irregular." Sounds perfect for PC geeks who'd like to give up ambulatory movement altogether.

■ The month of February marked the beginning of worm and virus season. Chomping on hard drives, crashing through firewalls, and bringing down entire networks, AnnaK, SirCam, Nimda, Code Red, and LoveBug created a *Jurassic Park*–like scene in cyberspace. To whoever created these pests: Thanks for the memories—assholes.

■ Seven lines of code that can decrypt a DVD in realtime are published online, putting authors Keith Winstein and Marc Horowitz directly in the crosshairs of the Motion Picture Association of America. That's the month of March for you—a bunch of "ides," St. Paddy's Day, and good-ol' American sneaking-into-the-movies-without-paying.

■ In April, Judge Thomas Penfield Jackson found Microsoft guilty of violating antitrust laws, and the Department of Justice later recommended that the company be broken up into two companies, one to handle operating systems and another for all other products. We think a third company should be in charge of distributing compensatory mead and black bread to all of King William's fiefdom.

■ IBM announced the birth of ASCI White in June. Capable of *(continued on p32)* ▼

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NEW

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Mini DV

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EXTERNAL HARD DRIVE

Maxtor 40GB 3000LE
The 3000LE has the distinction of being the first USB 2.0 device to ever enter the Lab—and we're fools for the new USB spec's fatty-fat throughput. While its big brother (the FireWire 3000DV) employs a 7200rpm rotational speed (the 3000LE runs at just 5400rpm), the key factor here is portability: USB 2.0 is backwards-compatible with USB 1.1. While we're not thrilled with mass storage via USB 1.1, it's better than no port at all when you need to plug and play.
$200; www.maxtor.com; not yet officially reviewed

WIDGET

M-Systems DiskOnKey
Plug it into your USB port and load up the DiskOnKey with 128MB of files, pictures, MP3s, or whatever else you want it to hold. Unlike other flash memory thingies, DiskOnKey has its own onboard CPU that allows it to connect to any USB-enabled PC (running WinME or a more recent version) without drivers. Like the people who developed the venerable corn dog, M-Systems took a great thing that's essential to life, and made it a snap to carry around. ***$50–$150 for 8–128MB capacities, www.m-sys.com, received an 8 verdict in September***

GEAR of the YEAR 2001

NEWS CONTINUED

more than 12 trillion calculations per second, this supercomputer will be used to test the safety and reliability of stockpiled nuclear weapons without real-world testing.

■ Despite frantic appeals, a beleaguered *Napster* was finally shut down in July. Napster Inc. later agreed to pay $26 million to settle legal disputes with music publishers and songwriters. Meanwhile, using other services that aren't quite so easy to litigate against, music lovers continued to steal MP3 files with impunity.

■ In August, the Department of Justice released guidelines for an independent review of the FBI's *Carnivore* software. There was concern the e-mail sniffing software could violate privacy rights. Which leads us to…

■ The terrorist attacks against the United States on Sept. 11 changed the debates about online privacy and video games forever. The Department of Justice asked Congress to expedite approval for expanding the government's authority to conduct electronic surveillance and add "computer intrusion" to its list of federal terrorism offenses. Meanwhile, Microsoft quickly offered a *Flight Simulator* patch that removes the World Trade Center from the game, and Westwood Studios offered retailers the opportunity to exchange boxed copies of *Red Alert 2* that depict New York skyscrapers under attack.

■ Also in September, Hewlett-Packard made moves to acquire Compaq in a stock swap estimated at $25 billion, one of the biggest deals in technology history. And the Department of Justice dropped attempts to break up Microsoft, deciding to pursue a settlement instead.

■ Windows XP, Microsoft's first consumer-oriented OS based on the Windows NT 32-bit kernel, shipped in October. At the launch in New York's theater district, Bill Gates said, "We want this event to help remind the world that New York still represents strength and determination."

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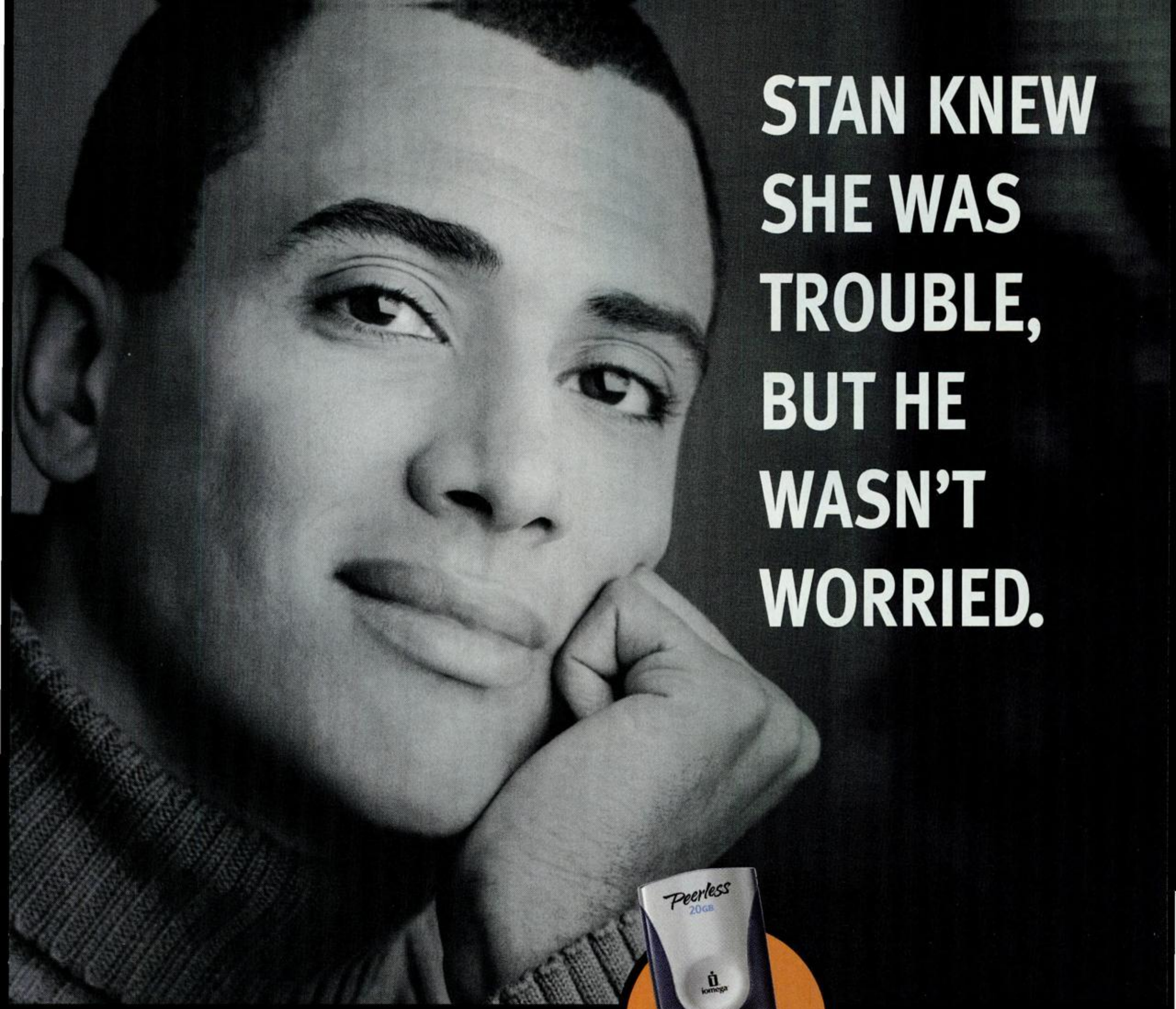

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MP3 PLAYER

Creative Labs Nomad II MG

Yes, for the second consecutive year we're picking the Nomad II MG, which is quite a coup for Creative Labs, considering how many different portable MP3 players have found their way into the Lab. Once again, we were looking for excellent sound quality in a high-capacity, solid-state package (a bunch of great CD/MP3 players were ruled out because they skip when you jog and jiggle). It's been a year, but no upstart has yet matched the MG's sleek simplicity and depth of features. The unit uses a USB interface and comes with a built-in 64MB capacity, along with a SmartMedia slot. We're particularly fond of the nickel-metal hydride batteries that recharge themselves in the Nomad's cradle. ***$200; www.creativelabs.com; received a 9 verdict and Kick Ass Award in March***

GEAR of the YEAR 2001

PDA ACCESSORY

ThinkOutside StowAway Keyboard

If there's only one peripheral you're going to buy for your PDA this year, make sure it's a StowAway keyboard. Also sold by Targus and Palm, this folding keyboard lets you practically ditch your notebook computer for light-duty e-mail and word processing on the road. The keyboard was originally introduced more than a year ago, but StowAway continues to introduce support for newer PDAs every few months. ***$100; www.thinkoutside.com; not yet officially reviewed***

ULTRA-PORTABLE NOTEBOOK

Sony PCG-C1MV Picturebook

The epitome of gadget cool, Sony's new Picturebook uses the latest Transmeta TM5800 Crusoe CPU, which runs at 727MHz but has all the low heat and miserly power consumption of a much slower proc. Amazingly, Sony managed to jam a 20GB hard drive, an onboard digital camera, and—surprise!—ATI's Mobility Radeon graphics chip into a case that's fewer than 10 inches long and just slightly more than 1 inch thick. For true mobile warriors, the Picturebook is unbeatable. It might help you pick up dates in bars, to boot. ***$2,000; www.sony.com; not yet officially reviewed***

DISSENT: "OK, fine. But where are the DVD and CD-RW drives? HP's kick-ass Omnibook 6100 gives you a combo drive, 1.2GHz P-III-M, and built-in Wi-Fi," says Gordon Mah Ung.

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PDA

Sony Clié PEG-N760C
Sony's colorful Clié stole the show. With greater brightness than the Palm M505, a high-resolution screen that doesn't have quite as much visual wonkiness as the HandERA 330, and an OS that can be flash-upgraded (which can't be said of the OSes in the Handspring line-up), this is the best Palm PDA in a PDA marketplace where Palm still rules the roost. Oh, and did we mention the Clié's MP3 playback? ***$500, www.sony.com, not yet officially reviewed***

DISSENT: "Toshiba's PocketPC e570 has both SD *and* CF memory support and packs a new Lithium Ion ALB battery," says Gordon Mah Ung.

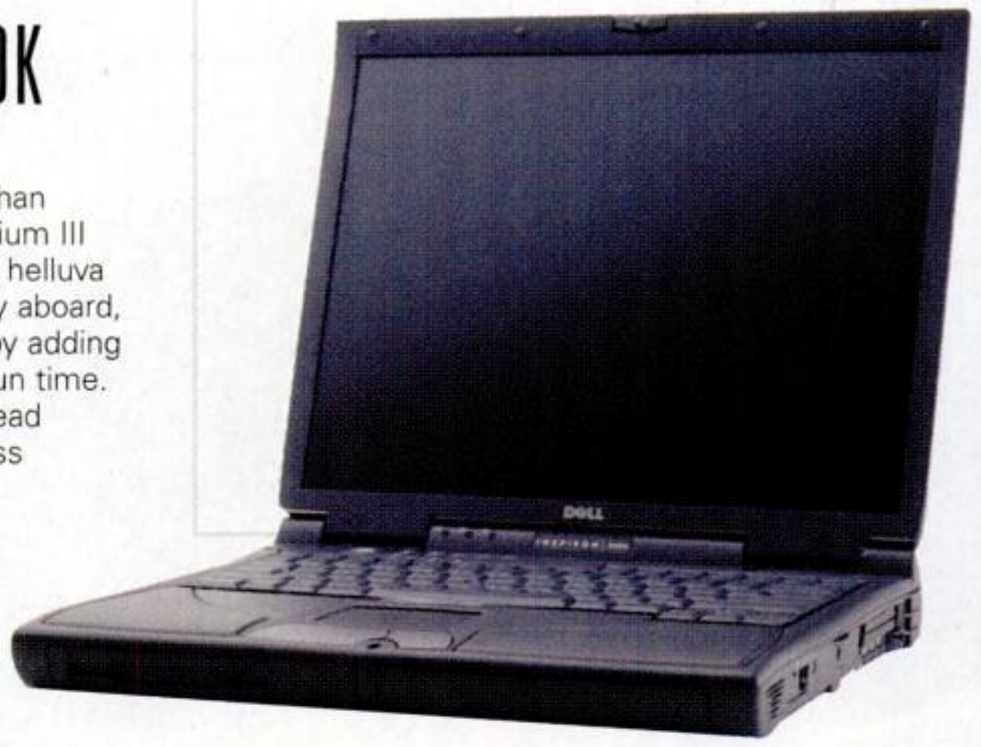
DESKTOP SYSTEM

Falcon Northwest Mach V
The Mach V was the first rig to arrive with the smoking Athlon XP, the first with Creative Labs' next-gen Audigy soundcard, and the first with an overclocked GeForce3 Ti 500. Add a top-of-the-line 24x PlexWriter, half a gig of memory, the Cooler Master ATC-100 case, Klipsch's 5.1 speakers, and Windows XP Professional, and you've got a system that starts looking suspiciously like a Dream Machine. The fact that it's from a dependable industry stalwart like Falcon Northwest doesn't hurt either. The Mach V is the most fan-bloody-tastic system we've seen all year. ***$3,745 (w/o monitor); www.falcon-nw.com; receives a 10 verdict and Kick Ass Award on page 72***

DISSENT: "Voodoo could have sent us essentially the same system and tied it all together with its master wiring-fu," says Logan Decker.

DESKTOP REPLACEMENT NOTEBOOK

Dell Inspiron i8000
When introduced in May, Dell's Inspiron i8000 was faster than most desktop machines. Packing a 1GHz Coppermine Pentium III and the first GeForce2Go graphics chip, the Dell is still one helluva notebook six months later. With a fixed optical drive already aboard, the i8000 can be configured as a portable burning station by adding a CD-RW drive, or run with two batteries for craploads of run time. With a 1600x1200 screen, dual input devices, and a dual-head display that actually works, the Inspiron i8000 is one bad-ass notebook. ***$2,971; www.dell.com; received a 10 verdict and Kick Ass Award in June***



GEAR of the YEAR 2001

WORST PRODUCTS OF THE YEAR

First the wonders, now the blunders. Should you ever see these products approaching, turn quickly—but as nonchalantly as possible—and *run*. Run like the wind! And don't look back....

■ Fellowes rode the Shame Train this year with two feeble attempts at making PDA data entry convenient and Graffiti-less. First, the PDA Pocket Keyboard challenged us to use our fat fingertips to press teeny-tiny keys, resulting in senmteces klike thjis. Fellowes made a second, bolder attempt with the PDA Keyboard and Case (above). One side is some kind of PDA coffin; the other side is a keyboard (if you can call it that) featuring function buttons sprayed in a pattern that we've previously seen rendered only by the Bedazzler. And don't even think about trying to type with both thumbs, Blackberry-style—the built-in dock will knock you clear off any of the far-left-hand keys.

■ Sensing steep competition from the programmable pixel and vertex shaders offered by nVidia and ATI, Matrox whipped out its own secret weapon. The Matrox G550 supports "headcasting" technology (below), so instead of looking at actual videoconference participants, you're treated to lip-syncing 3D models of their faces. *Shudder.* *(cont. on p38)* ▼

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DV CAMERA

Canon XL1

Though it carries a consumer-level price tag (yes, $3,800 is "consumer" in the DV camera space), the XL1 bears features previously found only in professional digital video and motion picture cameras. With an interchangeable lens system, the ability to record up to four audio tracks simultaneously, and superb image quality with rich, "intimate" colors not usually associated with DV, Canon's XL1 allows you to do what you've always wanted to do: direct. ***$3,800; www.canondv.com; received an 8 verdict in October***

DIGITAL CAMERA

Nikon CoolPix 990

Even the latest wave of 4-megapixel cameras hasn't managed to dethrone Nikon's funky CoolPix 990. The split-shell design accommodates unusual angles (what those angles are used for is your own business), and a unique multi-focus feature lets you take multiple pictures with different focal points. The CoolPix 990 boasts a 3.34-megapixel CCD, which is a bit too low-res for some folks, so if your unusual angles require a higher resolution, the new 5.24-megapixel CoolPix 5000 ought to do the trick. ***$1,000; www.nikonusa.com; received a 9 verdict and Kick Ass Award in February***

DISSENT: "You have to be blind if you actually believe digital cameras can compete with film. My single-stroke Leica M3 will kick your digital camera's ass," says Gordon "The Contrarian" Ung.

GEAR of the YEAR 2001

WORST PRODUCTS OF THE YEAR CONT.

■ Ah, and then there was the LapWorks Original. Ostensibly, it's a portable desk that distributes the weight of your laptop across your lap, resulting in "reduced body stress." We haven't seen a significant number of worker's comp. claims concerning this issue, but the desk was spared a completely humiliating raspberry, thanks to a single praiseworthy attribute—it did in fact spare Gordon's naughty bits from the ambient heat of his 1GHz P4 notebook.

■ Iomega vexed us with its Peerless removable storage system, a slow and heinously expensive setup that features an enormous blinking, blue light with the Iomega logo right smack in its center. We had to cover the light with duct tape during testing. Iomega envisions the Peerless system being used not only at the desktop, but in PVRs and car stereos, as well. We see it sitting in a bin somewhere next to a dusty box labeled "Jaz."

■ And what awful-product roundup would be complete without Pocket Pyro's PyroPro MP3 player? It was difficult to get it working, and once we did, we wished we hadn't. When used as a stand-alone MP3 player, it has only one button to control all the functions. Give it to a friend and hilarity ensues when he tries to skip to the next track by pressing the button twice, but accidentally increases the volume instead. Har har!

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INTRODUCING

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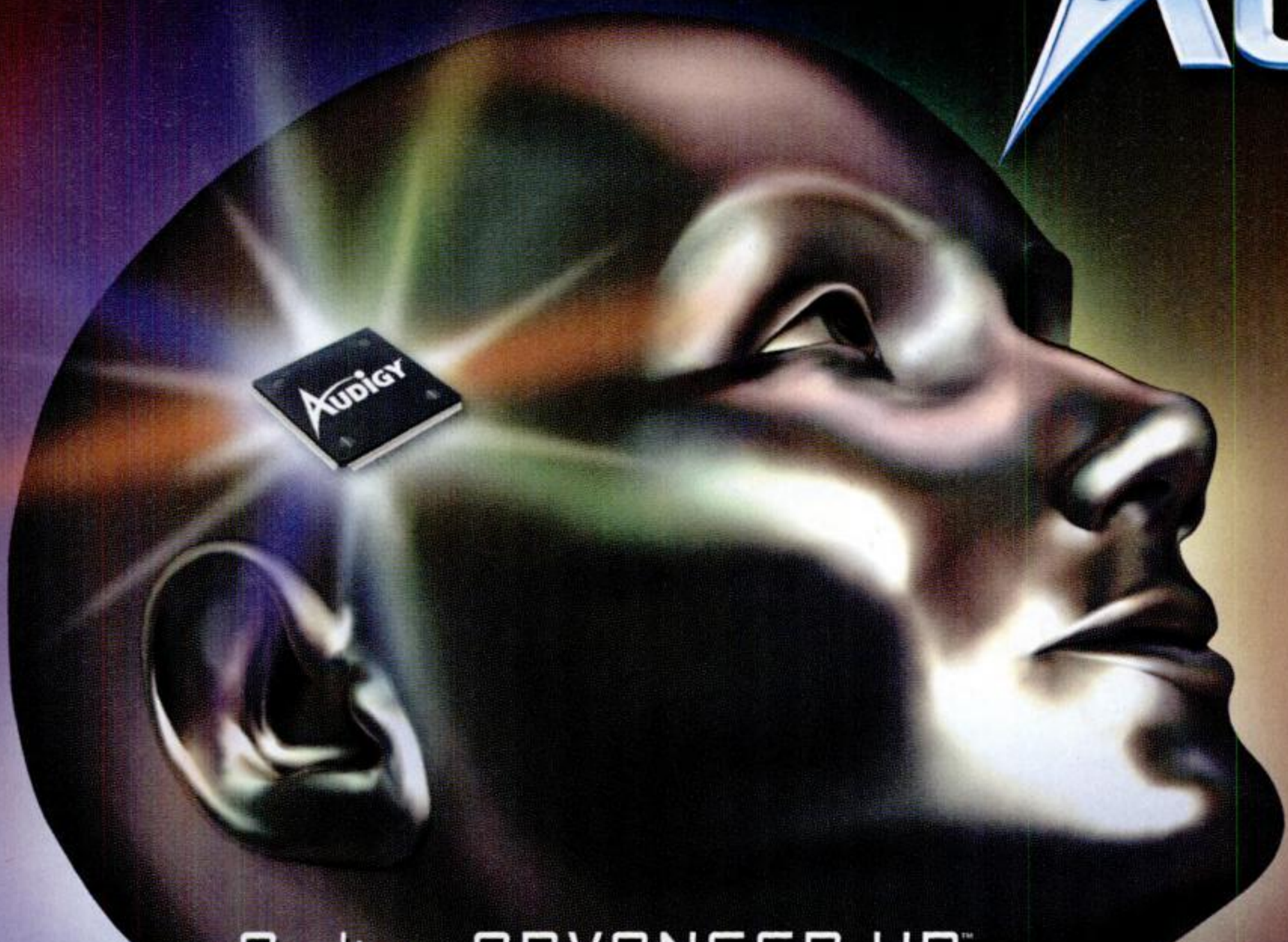

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KEYBOARD

Microsoft Natural Pro Keyboard

We admit it: We're absolutely smitten with Microsoft's hardware. In fact, the Natural Pro Keyboard adorns the desks of several *Maximum PC* editors. The Natural Pro has an ergonomic split layout and 19 extra buttons that control everything from web browser functions to music playback. And the latest version of the bundled software allows you to customize each of those hot keys, too! ***$60, www.microsoft.com/hardware, not yet officially reviewed***

DISSENT: "I need a tough, regular-person's keyboard, not one of those fancy-boy models. Whenever some bunny-hopping, cheating mofo kills me in *Counter-Strike*, I want to be able to smash my fists into my keyboard with impunity," Will Smith says.

MOUSE

Logitech iFeel Mouse

Despite our extreme reluctance to recommend a product named "i" anything, we have to give it up for the iFeel Mouse. Subtle sensations let you know when you're scrolling over desktop icons and down menu options, and the iFeel even imparts different tactile effects to let you know which weapon you've selected in shooters such as *Half-Life* and *Tribes 2*. The new, gray iFeel also boosts the resolution of its optical sensor from 400dpi to 800dpi. ***$40, www.logitech.com; received a harsh 8 in February***

DISSENT: "Real gamers don't need more than two buttons and a scroll wheel. Microsoft's original IntelliMouse in USB trim is all you need. Period," pipes in Gordon Mah Ung.

GEAR of the YEAR 2001

MONITOR

Sony F520

When in doubt, go to the source—the technology source, that is. Sony's patented aperture grille technology is now used in the highest-end monitors worldwide, and the Sony F520 represents the pinnacle of aperture grille perfection. The monitor boasts ungodly high resolutions, silly-fast refresh rates, a damn-near perfectly flat screen, and an industry-leading 0.22mm grille pitch that translates into unparalleled image definition. The F520 is simply the best monitor in the land. ***$1,500; www.sonystyle.com; received a 10 verdict and Kick Ass Award in September***

GAME CONTROLLERS

Microsoft Sidewinder Force Feedback 2
With a great button layout, an integrated power brick, and force feedback effects that aren't too weak or too strong, but rather juuust right, the Sidewinder Force Feedback 2 returns to Gear of the Year in 2001. If it ain't broke, don't fix it. ***$140; www.microsoft.com /sidewinder, received a 9 verdict and Kick Ass Award in February***

Thrustmaster Firestorm Dual Power
With two analog sticks, an eight-way D-pad, 10 buttons, and rumbling force feedback effects, the Firestorm Dual Power is a gamepad that PC users can finally be proud to own. ***$30, www.thrustmaster.com, not yet officially reviewed***

Logitech MOMO Force Wheel
It's not the stylish, stitched-leather, MOMO-branded racing grip that makes the difference in the MOMO Force—it's the realistic, believable force feedback effects that tell you when your front wheels are losing traction going into a curve at 140mph and when your brakes are regaining traction just in time to dodge the barrier. ***$200, www.logitech.com, not yet officially reviewed***

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HOME SERVER

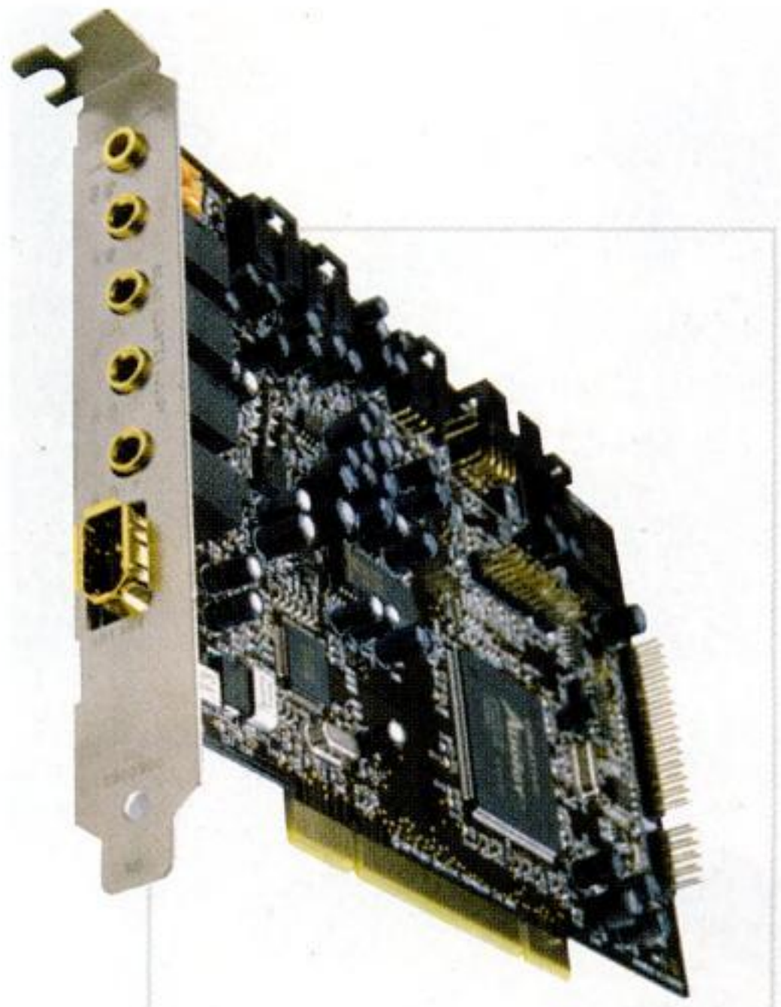
Celestix Aries 320

Need a broadband router? How about a place to store 20GB of distributable MP3 files? Or how about a web and e-mail server? The Celestix Aries 320 is a righteous 20GB Linux server that accommodates all these activities. It also includes two network interfaces, a pair of PCMCIA slots, and 128MB of RAM. But Celestix really trumps the competition by throwing in a Wi-Fi router and packing the whole shebang into a 7-inch-tall body! If you've got a DSL connection, this is your ticket to server wonderland. ***$1,300, www.celestix.com, Aries 320 not yet officially reviewed; Aries 310 received a 9 verdict in September***

SOUNDCARD

Creative Labs Sound Blaster Audigy

The Audigy represents the biggest leap forward in consumer-level soundcards since the debut of the original Sound Blaster. During comparative testing, the Audigy's 24-bit digital-to-analog and analog-to-digital converters simply produced better sound quality than that of all other consumer soundcards. What's more, the card's extended features—such as simultaneous recording from multiple sources and buffed-up sound-shaping EAX effects—eclipse all other contenders. There's even a Creative-branded FireWire port! ***$200, www.soundblaster.com, received a 10 verdict and Kick Ass Award in November***



GEAR of the YEAR 2001

SPEAKERS

Klipsch ProMedia 5.1

When it comes right down to it, there's Klipsch and then there's everyone else. We're still absolutely flabbergasted by the power the THX-certified ProMedia 5.1s deliver. Featuring five two-way satellites—each with a metallized tweeter and a 3-inch composite cone driver—as well as a bass-reflex sub box with dual 8-inch side-firing woofers, the Klipschie 5.1s create a sound field that can make an audio engineer weep. Use 'em for DVD movies, games, or just making people cry. ***$400, www.klipsch.com, received a 10 verdict and Kick Ass Award in October***

DISSENT: "Not everyone wants the wiry mess of a 5.1 speaker rig. The Labtec Pulse 424 is a $50 2.1 set that delivers a $200 hurricane of sound," says Will Smith.

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OVERCLOCKING ACCESSORY

ThermalRight SK-6 Pure Copper Heatsink

Running a standard-issue heatsink in your modded-out case is like having plastic hubcaps on a tricked-out car. ThermalRight's SK-6 pure copper construction instantly gives your rig a unique look, and its extremely efficient heat transfer makes it one of the most respected coolers on the market. Run it with a 7000rpm fan for ultimate cooling (if you can stand the noise), or use a slower 4000rpm for quieter, spa-like settings.

$35; www.thermalright.com; featured in September's Dream Machine feature, but not yet officially reviewed

DISSENT: Black & White

Dare we call it a "god" sim? Sporting breakthrough AI and state-of-the-art visual effects, *Black & White* puts the power of one almighty creature and the fate of thousands of villagers in your virtually deified hands. Are you a benevolent god that nurtures your people or an evil god that reigns through fear? Alas, everything you do in the game—be it an act of positive or negative reinforcement—affects the outcome. On the graphics tip, each human sports 300 to 400 polygons, and there can be several hundred of them onscreen at any given time. Magical spells are represented with outstanding particle effects, and we love the gesture-based spell-casting system. ***$40; www.blackandwhite.com; Received a 10 verdict and a Kick Ass Award in June***

GEAR of the YEAR 2001

DISSENT: No One Lives Forever

If you judge a game by how much office banter it generates, then *NOLF* is undoubtedly a *Maximum PC* house favorite. Sure, you can diss it for its painfully outdated LithTech engine, but this first-person action-adventure shooter is immensely enjoyable and offers hours of entertainment long after other titles have run their closing credits. Gameplay ranges from classic run-and-gun to stealth espionage, and the whole enchilada is riddled with brilliant level design that takes you from Morocco to the Alps to an orbiting space station. Plus, with period motifs that parody 1960s-era James Bond movies, *NOLF* is the absolute funniest PC game ever. ***$50; www.the-operative.com; received a 9 verdict and a Kick Ass Award in January***

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GAME OF THE YEAR

Max Payne

No other game of 2001 so effectively reproduces the experience of a pure adrenaline rush, that quasi-druggie phenomenon that occurs in fight-or-flight situations, when time slows to a crawl and mental clarity is heightened. Typical scenario: You burst into a room, only to find a full squad of henchmen shouting "Paaaaaayne!" and taking aim at you. Click the "Bullet Time" slow-motion feature, and suddenly you have enough breathing room not only to dodge enemy fire, but also to line up your own shots and pick off a few bastards before scampering for cover behind a barricade—all to the steady throb of your own heartbeat.

Of course, Bullet Time is just a very well-executed gimmick. What really make *Max Payne* so satisfying are its creative level design, thrilling plot pace, accurately modeled weapons, and high-res textures. Other games may have received higher official review verdicts in the magazine, but *Max Payne* was the only title that appeared on every single editor's Game of the Year nomination list. In fact, this first-person action-shooter amassed so many total points during our election process, we just had to name it Game of the Year. ***$50; www.godgames.com; received an 8 verdict in October***

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RIGS OF THE YEAR

They arrived in droves from living room workshops across North America—big rigs, small rigs, fat rigs, thin rigs. Rigs of glass, rigs of steel, rigs of rotting banana peel. And each one is special in its own geeky way. But must these rigs be confined to just one page per month? Never! We thus give you the… RIGS OF THE YEAR!

If you'd like to submit your machine for our monthly Rig of the Month section—home to the ultimate expressions of do-it-yourself PC craftsmanship—e-mail a 300-word write-up and high-res JPEGs to input@maximumpc.com. Please describe your case mods in precise detail and send three to four pics totaling no more than 2 to 3MB.

"The DVD Whore House"

by Alex Lorenzen

Key hardware: 1.2GHz Athlon T-bird; MSI K7T Turbo motherboard; GeForce2 GTS 32MB; four IBM hard drives; highly modified Pioneer 16x 105S DVD player. **Key mods:** Sure, it's got two viewing windows, a fanbus, a bunch of cool cabling, and a neon kit, but what really makes the Whore House special is its DVD window (clearly visible at the top-front of the case), which Lorenzen says is the first of its kind. And if you want to talk about ingenuity, consider that Lorenzen actually used the rim of a peanut can for the DVD player's porthole! **Shop notes:** "Nothing beats the Lite-on FS020 case for modifying…. After eating one whole can of Planters and sniffing a lot of paint, the entire project was an awesome success." Go to **www.colonel-sanders.com** for details.

"Technon"

by Nick Pelis

Key hardware: Dual 1GHz Pentium IIIs; Abit VP6 motherboard; GeForce 256; one 20GB Maxtor boot disk, and two 40GB Maxtor disks operating in a RAID 1 configuration "for safe storage of pictures, MP3s, pr0n, etc." **Key mods**: Black paint, inside and out; Radio Shack SuperBright Blue LEDs replacing stock front-panel indicator lights; blue neon lights viewable through the window; plenty of glow string to accent the interior; rounded IDE and floppy cables encased in split-loom tubing; a 120mm top fan; and two handles on the top for easy transport to and from LAN parties. **Shop notes**: "This rig started out as a simple fan mod, but eventually got out of control…. Touching the bare wire leads from the neon DC/AC converter produced a jolting electrical shock. It felt really good, and I kept coming back for more."

"Green Envy"

by Daniel Tanner

Key hardware: 1.2GHz Athlon T-bird; 64MB Hercules GeForce2 Ultra. **Key mods:** "After upgrading my PC, I was happy as a clam—then I saw the cyborg green 'Alien Aurora' rig on the cover of the May issue of *Maximum PC*. I turned green with envy, but your 'Sub-Zero' article [May 2001] on how to paint PCs solved my problem." In addition to the paint job and window, Green Envy features a green interior light, a 120mm top blower, and red, rounded IDE cables. **Shop notes:** "Once I installed the window, I realized that all the cards face down, and you couldn't see the blue heatsinks and fans on the videocard. So I bought a 12x12-inch mirror tile, cut it to fit, and put one half on the bottom of the case and the other half in the back, running from the motherboard forward. Now when you look down in the mirror, you can see the face of the videocard."

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"HL"

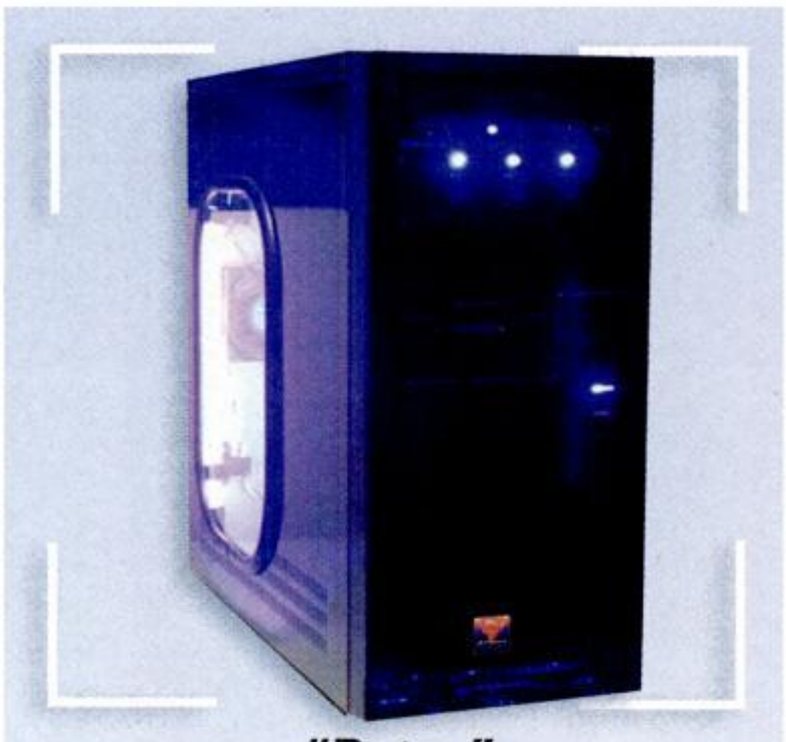
by Scott Hieatt

Key hardware: 1.33GHz Athlon OC'd to 1.4GHz; GeForce3; two 80GB hard drives striped in RAID 0. **Key mods:** What you see is what you get—the rig's mods begin and end with a sparkly gold paint job, a blue neon cathode interior light, an LCD thermometer readout; and a singularly striking *Half-Life* logo meticulously cut into the side panel with a Dremel tool. Modest, but sublime. **Shop notes:** "After reading your article on how to mod a system, I've been intrigued about doing it to my new computer. I have no tricked-out cooling solutions and no fan bay, just a cool-looking, overclocked gaming machine. The main goal for this project was just to be posted as a runner-up in your mag and impress people at LAN parties. All I really wanted was to see a small, little picture of my rig and my name in print." Done deal, Scott.

"Hi-TEK PC-60"

by Chris "Hi-TEK" Steele

Key hardware: Pentium III 800EB; Abit SE-6 motherboard; 512MB PC133; Hercules 3D Prophet II MX. **Key mods:** The rig's most startling customization is its Crystalfontz 20x4 LCD, which performs double duty by reporting vital stats (CPU temperature, PSU voltage, fan RPM speed, hard drive activity, and TCP traffic, to name just a few) and *Winamp* MP3 information. And who can ignore the custom-built Stereo VU-Meter at the bottom of the front bezel? The more audio that's pumped through the soundcard, the more LEDs that light up. **Shop notes**: "The nice part [about the VU-Meter] is that it syncs perfectly, whether I'm playing music or fragging someone in *Quake III*.... Call it a labor of love, or case-modding disease, but not all Lian Li cases are created equal. A little hard work and imagination goes a long way in terms of turning your ideas into reality."



"Betsy"

by Bill "StressTest" Morales

Key hardware: Athlon 1.4GHz C model (133FSB) OC'd to 1.74GHz; ASUS A7V133 motherboard; Elsa Gladiac GeForce2 Ultra DDR; Inwin S500 case. **Key mods:** Window kit from Pcmods.com; cooling paraphernalia from Coolerguys.com (Morales's employer); and a bunch of neat-o interior lights—one 12-inch violet light, one 10-inch blue light, and one 10-inch black light, all controlled with a handmade front panel featuring rocker switches and blue LEDs. But the rig's most unique feature might be its paint job. Morales used three coats of Cranberry Pearl (a pricey automotive paint), followed by three more coats of clear coat. Between applications, the case was baked in a kitchen oven at 150°F. Topping it all off, the interior cage was painted candy purple, then spattered with three colors of luminescent paint (red, blue, yellow) that glow in the dark when hit by the black light.

"[N-Sane] Server"

by Pete Tuche

Key hardware: 1.4GHz Athlon T-bird; SOYO K7V Dragon motherboard; 512MB Corsair DDR; WinFast GeForce2 MX Pro. **Key mods**: If the world was run by Jeep fanatics, everything would be covered in durable, hard-gripping "diamond plate"—our homes, our clothes, our pets, even our food. But Tuche was sensible enough to begin and end with his computer. The entire case is handmade, save for its card slots, and features rounded IDE and floppy cables, a clear Lexan side-panel, cold cathode ultraviolet and blue lights, and an Enermax EG465 P-VE power supply. **Shop notes**: "My CJ7 Jeep is pretty much loaded with diamond plate. This case came from the taunting of my friends: 'It's a wonder you haven't made a computer with diamond plate....' Well, here it is."

"The McFly Thunderbird"

by Chris Sams

Key hardware: Athlon 1.2GHz (266 FSB); Abit KT7-A Raid motherboard; 512MB PC-150 SDRAM; Hercules 3D Prophet II Ultra 64MB. **Key mods:** Custom paint job—two coats of metallic-blue enamel and metallic-silver enamel, each topped with three coats of clear acrylic enamel. Custom-cut Plexiglas window with "High Voltage" applique. Cold Cathode Blue Neon Light from Pcmods.com. **Shop notes**: "I built it mainly to entertain myself, but got a bonus, as it greatly annoys the wife.... There's nothing like hearing *Unreal Tournament* being pumped optically from the Game Theater XP soundcard to my 450-watt Home Theater System.... I would also like to give thanks to Pcmods.com for providing me with quality parts and unrivaled customer service. Highly recommended."

"Still Kickin'"

by Bob Fink

Key hardware: Pentium III 1GHz; ASUS CUV 4X-E motherboard; ASUS V7700 GeForce2 GTS; 512MB SDRAM. **Key mods:** Fink started with zero PC knowledge and ended up with a custom rig that trumps 99.9 percent of the hardcore PCs on the planet. Besides upgrading his hardware, Fink added two fan holes, a Plexiglas window, a black fluorescent interior light, a mirror for the bottom of the interior, a bunch of wire tubing, and a custom exterior paint job that would remind himself "to be careful in there." **Shop notes:** "I'm so glad this thing is still kicking. When I bought it six months ago, I didn't have a clue about anything PC-related—I was terrified. But after wiping the hard drive 10 or 20 times, changing a few parts, and upgrading a couple, the fear is gone. Now I'm hooked. I just can't get enough."

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"Biohazard"

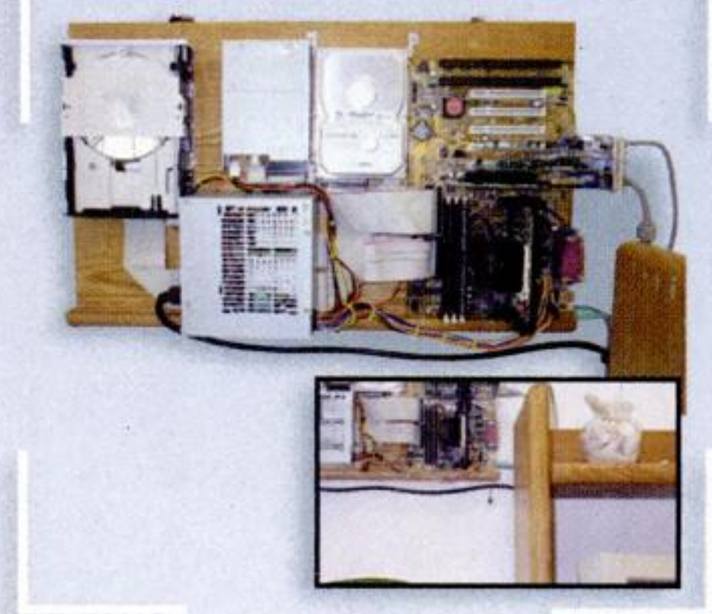
by Kent Mages

Key hardware: Dual 1.2GHz Athlon MPs; GeForce3 Ti 500; 2GB PC2100 DDR; four 60GB IBM Deskstar hard drives striped in a RAID config. **Key mods**: Mages says his running "biohazard theme" includes laser-cut fan covers, a window decal, and a badge on the front of the case. Inside you'll find two sound-activated red neon lights, and neon tubing that runs around the rig's two windows. But Mages says the "most overdone" aspect of the machine is its cooling—23 fans total, eight of which are 80mm fans controlled by a baybus. **Shop notes**: "Basically, I wanted to build a machine that looked good and out-performed anything I could buy from a retail store. After many cuts and bruises—thus the name Biohazard—I'm happy with the look of the PC.... It has successfully taken over my life."

"Peace On Earth"

by Christopher J. Roberts

Key hardware: Celeron 766MHz OC'd to 1GHz; ASUS CUSL2-C motherboard; ASUS v8200 GeForce3 Deluxe; Inwin Q900 full-tower case. **Key mods:** Sure, it's got a big-ass window and a black light for the interior, but what makes this rig really special is its wild paint job. The exterior boasts three layers of black paint applied with an air-brush gun, as well as custom alien graphics, care of the master himself. Once all this paint hardened, Roberts applied three coats of clear coat, followed by a coat of rubbing compound and a coat of Turtle Wax. But here's the kicker: Everything inside the case is painted with black-light reactive paint. **Shop notes:** "If you look at the motherboard, you'll see that every chip and tracer line is painted a different color. I added stars and other space symbols to capture the look.... This case would make even Alienware envious!"



"Open Architecture"

by Inet Consulting

Key hardware: 566MHz Intel CPU; MSI motherboard; nVidia AGP videocard. **Key mods:** When is a case mod not a case mod? Answer: When it doesn't even have a case! **Shop notes:** "We had a customer give us a relatively new computer that kept locking up whenever he bumped it. We completely took it apart and set it up on the bench. It now works great. It must have been grounding out on the case. We had a new employee start the next day, and this computer was better than anything else we had to offer at the time. We removed the shelf and mounted the computer to it. Since the air conditioner blew right onto the computer, we were able to overclock the 566MHz machine more than usual. It's now our *Norton Enterprise* server and makes a great addition to our collection of geek nostalgia. We also have a refrigerator that used to be an AS400."

"G4PC"

by Drew Lanclos

Key hardware: Celeron 466MHz; AOpen MK37 motherboard; Hercules 3D Prophet II GTS 64MB. **Key mods:** Lanclos has accomplished what many PC users have only threatened to do: integrate a fully working PC inside a G4 case, the single piece in the Apple repertoire that's actually better than most of its PC counterparts. "The G4 chassis is, more or less, of a micro-ATX formfactor and can accommodate a standard ATX power supply. It has a drop-down tray that houses the motherboard and add-on cards, and it can be easily accessed by pulling on the side-handle." **Shop notes:** "When I originally performed this mod and posted it to SystemLogic (**www.systemlogic.net/articles/01/8/g4pc/**), people from MacAddict.com came by to gawk, and later to flame.... They all thought I bought a Power Mac G4 and set the original Mac hardware aside to rot!"

"CCR box"

by Zack "sysfailur" Emerick

Key hardware: 1.53GHz Athlon XP OC'd to 1.82GHz at 25°C; EPoX EP-8KHA+ motherboard; 768MB Crucial DDR running at 180MHz; Leadtek Winfast GeForce2 Ultra running at 315/262.5MHz. **Key mods**: The CCR box actually contains a water-cooling apparatus—a Cube Radiator and MAZE2 waterblock from Dangerden.com, and a reservoir/pump kit from Overclock-watercool.com. The main window and lettering cutouts are covered in iridescent blue plastic and showcase an interior black light, as well as iridescent dye that's been tossed into the cooling water. The whole electric setup is controlled by a front mounted baybus. **Shop notes**: "The physical modifications on this case and the hurdles that my father and I had to overcome made the process of creating my computer take about one month."

"Cool and Quiet"

by Troy Walker

Key hardware: Pentium III 700MHz OC'd to 1GHz; Abit BE6-II RAID motherboard; GeForce2 Ultra. **Key mods**: Walker says, "Having grown weary of the annoying whine of multiple fans trying to maintain reasonable system temps, I re-thought my cooling scheme. How could I keep things cool, but rid myself of the noise?" The answer starts with eliminating extra case fans, then using automotive manifold ducting to redirect cool, fresh air from outside the case. An Agilent ArctiCooler heatsink helps dissipate CPU heat, as well. To reduce noise, Walker layered his case interior with cardboard, acoustic foam, and throwaway mouse pads. **Shop notes**: "Temps before ducting: case, 104°F; CPU, 107°F. Temps after ducting: case, 95°F; CPU, 91°F. I'm amazed at how effective the ducting is!" ■

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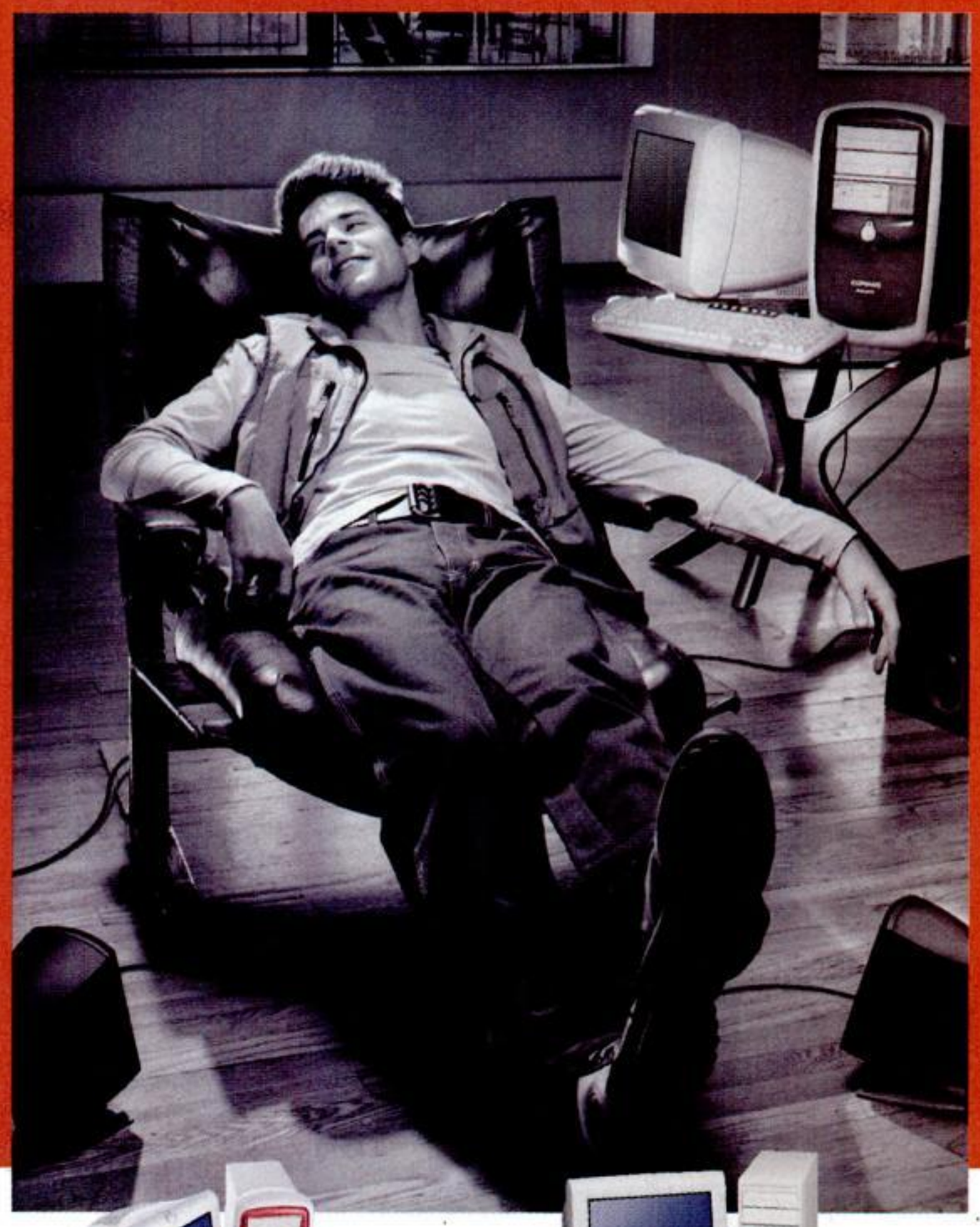

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WE'RE MAKING A LIST...

More than 20 of the coolest gadgets, and nearly all of them hook up to your PC. Add a devastating pixie and a couple rounds of eggnog, and you've got yourself a holiday hardware geekfest you won't soon forget!

We all know it's better to give than to receive. But why not take out two birds with one stone by giving to yourself? To help you get started, we rang up the North Pole (Elves Amalgamated Union Local 0192) and got some great advice from Candy, the Geek Elf, on the hottest PC gadgets available this season (sorry, guys, unless you have faintly green skin and pointy shoes, you're not her type).

Candy gave us pointers to all kinds of awesome digital toys—fun stuff for geek guys and girls on just about any budget. Hey, we've even got gadgets for your gadgets! Whether you're shopping for yourself or for the geek in your life, you're sure to find something that'll bring good cheer to the holidays. Candy also passed along some sage advice for a trauma-free season; check out her tips at the bottom of each page. And while you're at it, don't forget to check out what she's stuffed in her stockings...

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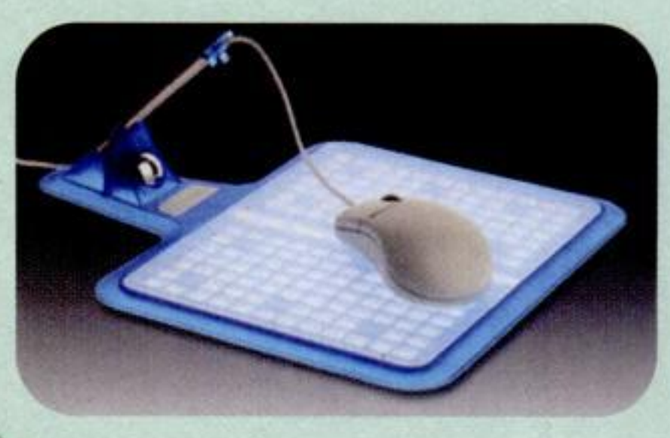
PC Gadget Guide

DM2 Digital Music Mixer

At first glance, the DM2 looks a bit like a Fisher-Price version of a real DJ's twin-turntable setup. In reality, however, it's a very nifty kit that allows you to create and remix your own tracks. The software includes 30 premade songs and hundreds of preset sounds that can be compiled to create your own songs of virtually any genre. You can also import other sounds and songs to tool around with. And, yes, you can spin the turntables to create those funky scratching effects, just like Terminator-X . **$100; www.mixman.com**

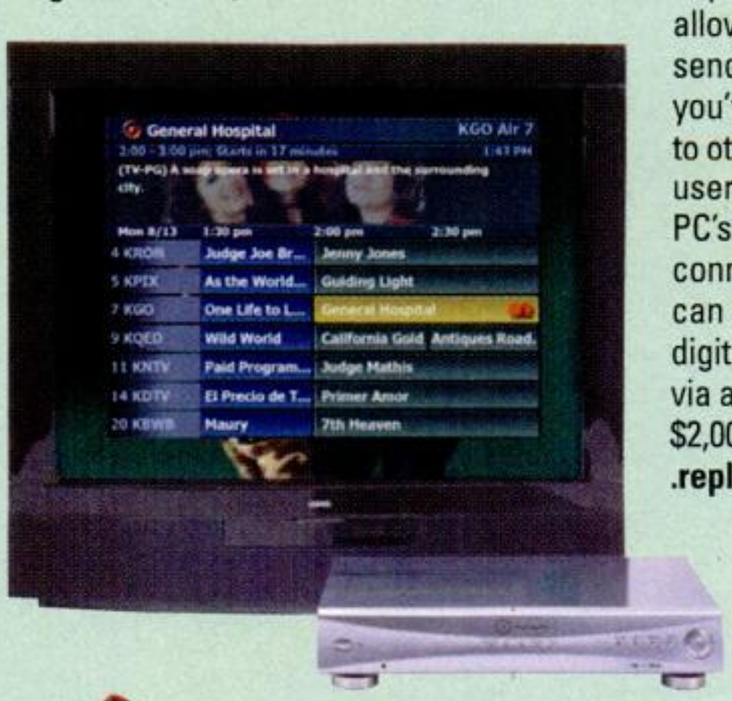
Everglide Mouse Bungee

Perhaps you're one of those poor bastards who fight never-ending, merciless battles against their own mouse cables. Everglide has finally brought this protracted war to a decisive close with the Mouse Bungee, an ingenious little device that tethers your mouse cable to a spring-loaded arm that's mounted to a heavy ball bearing, ending mouse-drag at a stroke! It's both a frugal alternative to a cordless mouse and the perfect holiday gift for someone you like—but not that much. **$15; www.everglide.com**



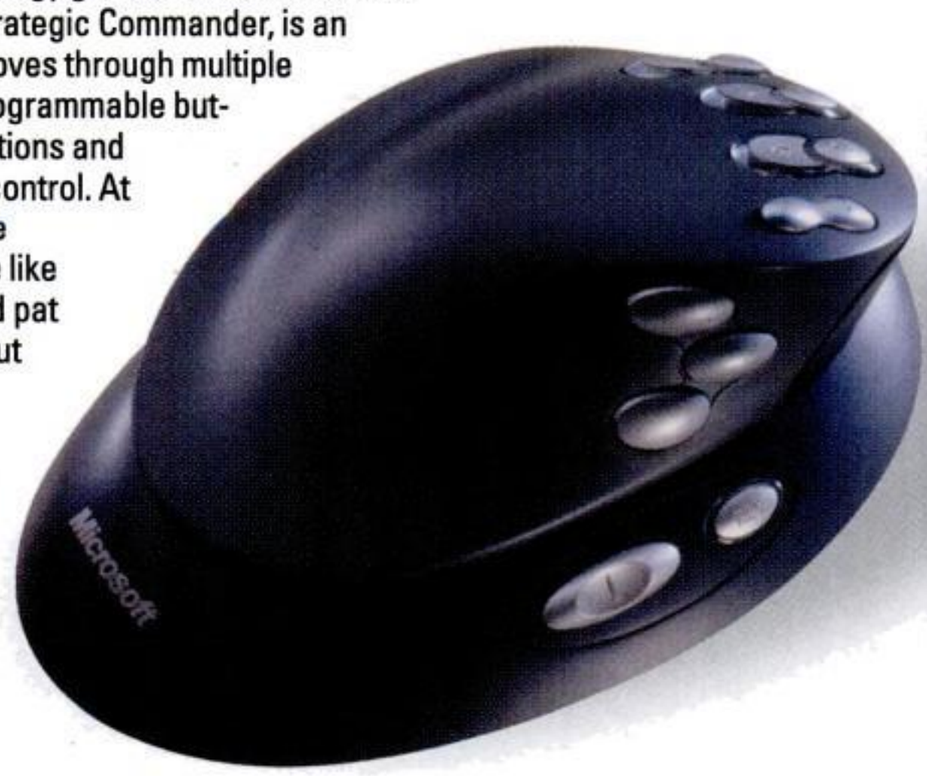
ReplayTV 4320

While the rest of the digital video recorder wannabes bang rocks together with pathetic 30- and 60-hour devices, ReplayTV is laying down the smack with a new set-top box that boasts a whopping 320 hours of recording time. Aside from its obscenely large hard drive, the 4320 comes with an Ethernet port that allows you to send shows you've recorded to other ReplayTV users via your PC's broadband connection! You can even transfer digital photos via a PC link-up. **$2,000; www.replaytv.com**



Microsoft Sidewinder Strategic Commander

Are you a fool for realtime strategy games? Microsoft's first custom gaming device, the Strategic Commander, is an oversized control puck that moves through multiple axes and offers an array of programmable buttons for specific in-game functions and much quicker, more efficient control. At first, using your mouse and the Commander in concert can be like trying to rub your stomach and pat your head at the same time. But the new wave of spinning, zooming, and fast-moving strategy games just might be a little easier to manipulate once you get the hang of the Commander's unique nuances. **$50; www.microsoft.com/hardware**



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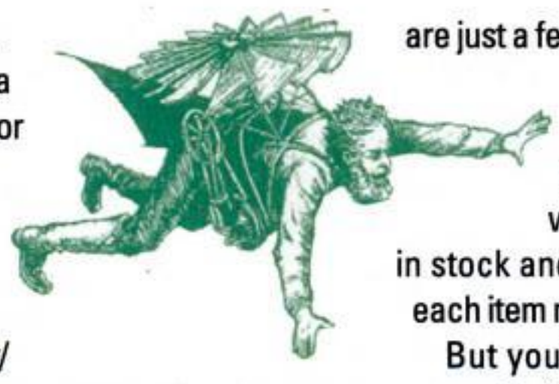
If you're banging your head against the wall, trying to find an affordable gift for someone who has everything, we have one word for you—surplus. That is, American Science & Surplus, a purveyor of fine leftover goods that just need the attention of someone's fertile imagination. Your special someone might have enough cameras, PDAs, and cell phones to last a lifetime, but we doubt he or she has a 50,000-volt Tesla Coil ($200). Or a battery-powered combination disco-ball/Christmas tree ornament/fire alarm ($15). And certainly not a 40 lb., single-probe, Canadian military Geiger counter ($195). These are just a few of the obvious choices. You'll have to check the catalog or web site for what's in stock and what purpose each item might serve.



Meet Jarvis, the American Science & Surplus Master of Ceremonies.

But you're not on your own. Guiding you through the 65-page illustrated catalog is AS&S copywriter Mary Ann, whose deep insight and complete inability to avoid a pun permeate every item (she writes "torque is cheap" for a $35 Baldor Gear Motor). Mary Ann provides you with innovative tips (Haz-Mat Hood: "Put an alien in it for preservation and inspection"); cultural perspectives (French Virgin Teflon: "An oxymoron if we've ever heard one"); and even safety advice (Mini Vacuum: "Don't stick your finger into what looks like an empty

Continued on page 54

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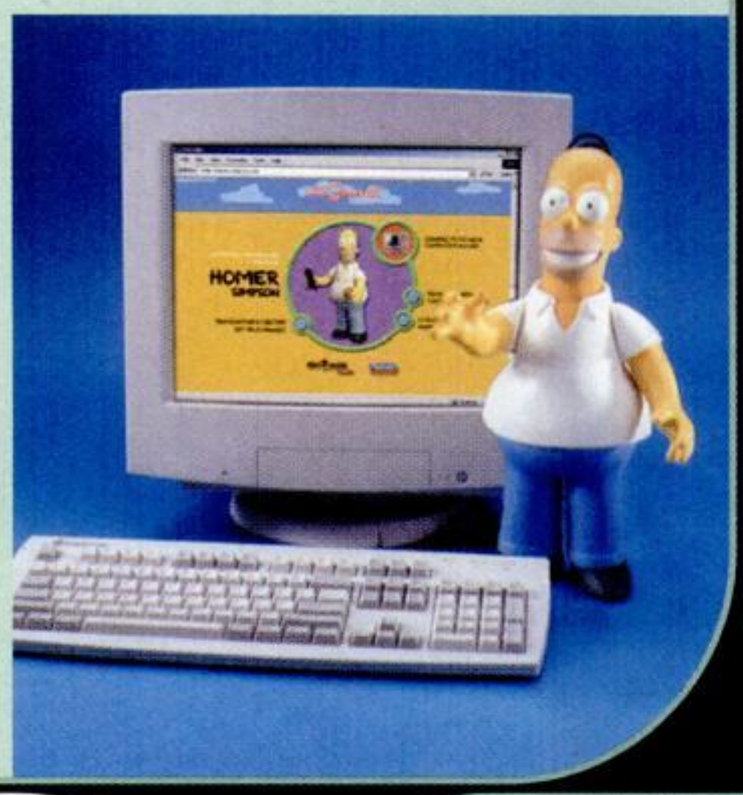
PC Gadget Guide

Homer Simpson Dot-Pal Desktop Sidekick

Here it is, folks—the very essence of blissful pointlessness. This oversized, motorized, plastic Homer plugs into your USB port and proceeds to gyrate, nod, and utter digitized Homerisms in response to whatever you might be doing on your PC. Fire up Microsoft *Word*, for example, and he might say "All you ever do is scribble, scribble, scribble." Or he'll crack wise on such mundane tasks as minimizing windows and sending something to the recycle bin. You'll be thankful all this is fully customizable. Cranked to the maximum levels of "interactivity" and "spontaneity," you'll be grumbling as disapprovingly as Marge. $40; **www.playmatestoys.com**



Pentax Optio 430 Digital Camera

For every true gadget geek, there comes a time about once or twice a year when the clouds part, the heavens open, and pure tech bliss reigns. Our first meeting with the Pentax Optio 430 was one of those times. At 7.2 ounces, it's not only the smallest but also the lightest 4-megapixel (2240x1680) camera in the world. It's got a 3x optical zoom and a 15fps video mode. But the best part, we must admit, is its mouth-watering design and brushed chrome finish. It's so stylish, in fact, you'll want to buy two so you can use one to take admiring snapshots of the other. $800; **www.pentax.com**

AfterBurner CD Labeling System

You can throw down for the best CD burner money can buy and use state-of-the-art software to create the most professional-sounding MP3 mixes around, but if you press a few ripples onto the surface of the disc when you label it, you're screwed. Enter Avery's AfterBurner CD labeling system. Sure, it looks kind of silly, but it's not intended for placement on your mantel. The AfterBurner's flexible, spring-loaded plastic arch applies the label from the center outwards for disaster-free application every time. Life is good. $30; **www.avery.com**

Roland PC-300 Keyboard Controlle

Now that you've dropped all that dough on the latest software synths and samplers, the last thing you want to do is stifle your genius by trying to knock out a tune or tweak your sounds with a mouse and keyboard. No, friends, what you need is a MIDI keyboard controller. Trade up with the Roland PC-300, one of the first USB-based keyboard controllers—no MIDI port necessary; just hook it directly to your PC's USB jack! The 49 touch-sensitive keys ought to be enough to demonstrate your virtuosity, or at least get you through those software-based piano lessons. $300; **www.edirol.com**

CANDY'S HOLIDAY SURVIVAL TIPS

Continued from page 52

hole… you'll find the fan instead"). If you can't find something your loved one will appreciate from American Science & Surplus, maybe it's time to break it off and move on. American Science & Surplus, 847.982.0870, **www.sciplus.com**

EGGNOG: FRIEND OR FOE?

We know what eggs are—that part we're clear on. But what the hell is nog? Well, in ye olde British East Anglian dialect, nog means "strong ale." As for the eggnog we find in the dairy aisles every December, it appears this libation is a direct descendant of "posset," a concoction of eggs, milk, and ale or wine. By the early 19th century, this mixture was being called eggnog, and on American shores the Yanks ditched the ale or wine option (smart move) and started making their eggy hooch with rum and bourbon, which were cheaper and more plentiful than the brandy and sherry favored by the snooty Brits.

Feel free to share this history lesson at your next holiday party, then follow it up with a round of genuine, *Maximum PC*–branded geeknog.

Ingredients:

- 6 eggs
- 1 cup of sugar
- 1 teaspoon vanilla extract
- 1 teaspoon ground nutmeg
- 2 cups whipping cream
- 2 cups milk

Continued on page 56

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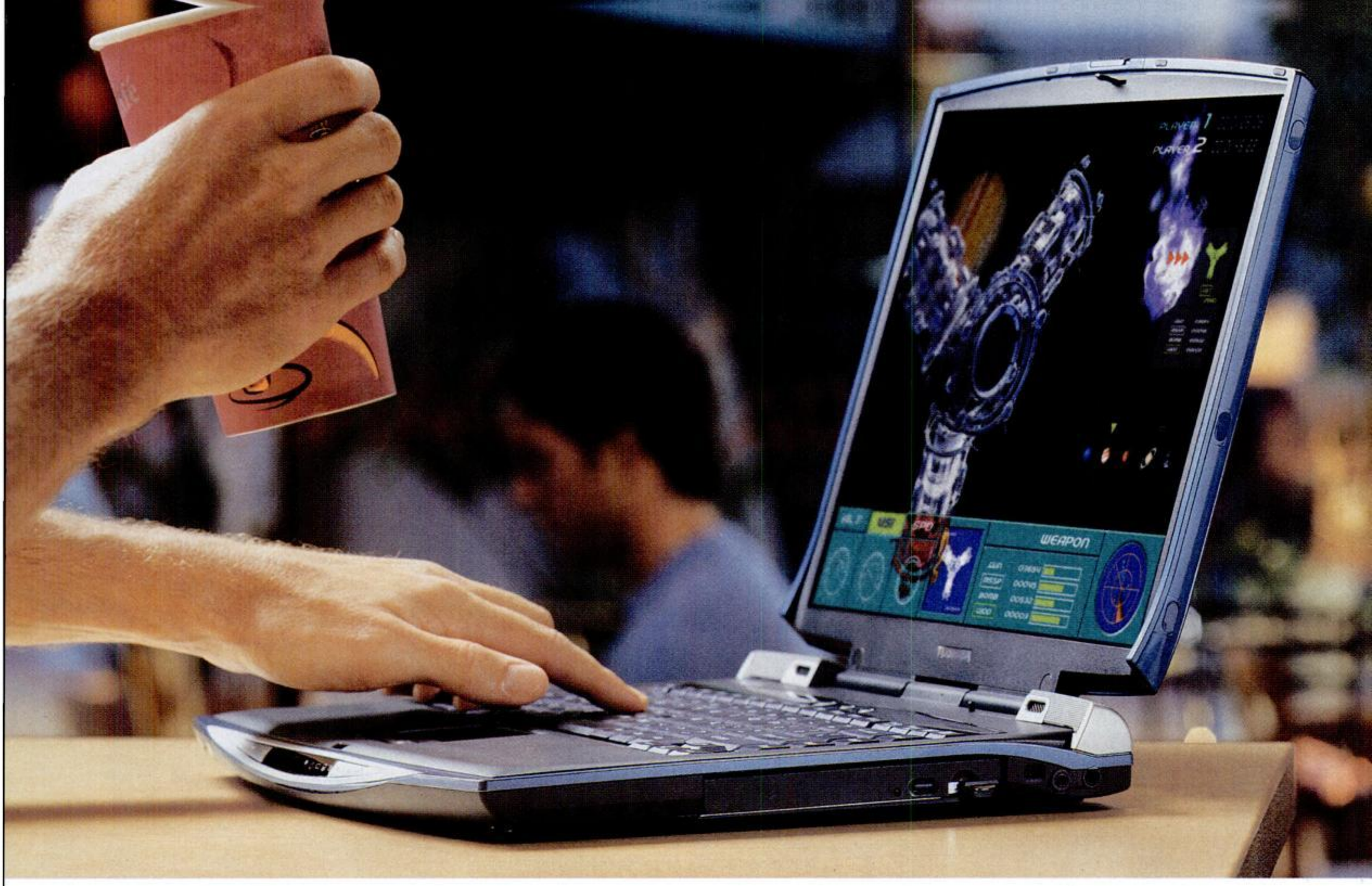

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PC Gadget Guide

STOCKING STUFFERS

Samsung YP-20S Mini Yepp MP3 Player

When it comes to MP3 players, size does matter. And in this regard, Samsung has convincingly schooled the competition with its walnut-size 64MB YP-20S Mini Yepp. Look at this thing! At just 1.7x 2.7x 0.9-inches, you could swallow it during a strip search and resume listening to tunes after your morning muffin! Unfortunately, it doesn't accommodate any kind of removable media, but its size alone makes it irresistible. We're not so thrilled with the schoolmarm-style metal brooch chain, but hey, how you get your kicks is your own business. $130; **www.samsungusa.com**

Intel Play Digital Movie Creator

The propellerheads at Intel have outdone themselves with the Digital Movie Creator, a handheld digital video camera designed for kids (but don't let the age range stop you). You can shoot up to four minutes of AVI footage (one minute at maximum resolution) or 1,200 snapshots, or as much as your hard drive can handle while the camera is in its USB cradle. The camera has a built-in microphone for the Linda Tripp in you, and bundled editing software helps you turn your footage into compelling propaganda. Get one for the kids—remember, little Spielbergs grow up to be big Spielbergs, and look what he's up to now. $100; **www.intelplay.com**

Casio PAT2GP-1V GPS Wristwatch

The mother of all wrist toys is here, boys and girls. The latest in Casio's outdoor Pathfinder series boasts a global positioning system that indicates your longitude and latitude anywhere in the world. Connect it to your PC via its bundled docking port, and you can download navigational data for a specific journey. For us indoor types, it's merely the latest manifestation of Casio's "because we can" attitude, but for the casual hiker or explorer, this is some sweet, load-reducing technology. Just make sure that anyone who's poser enough to wear one of these around the office is treated with the appropriate amount of derision. $500; **www.casio.com** ■

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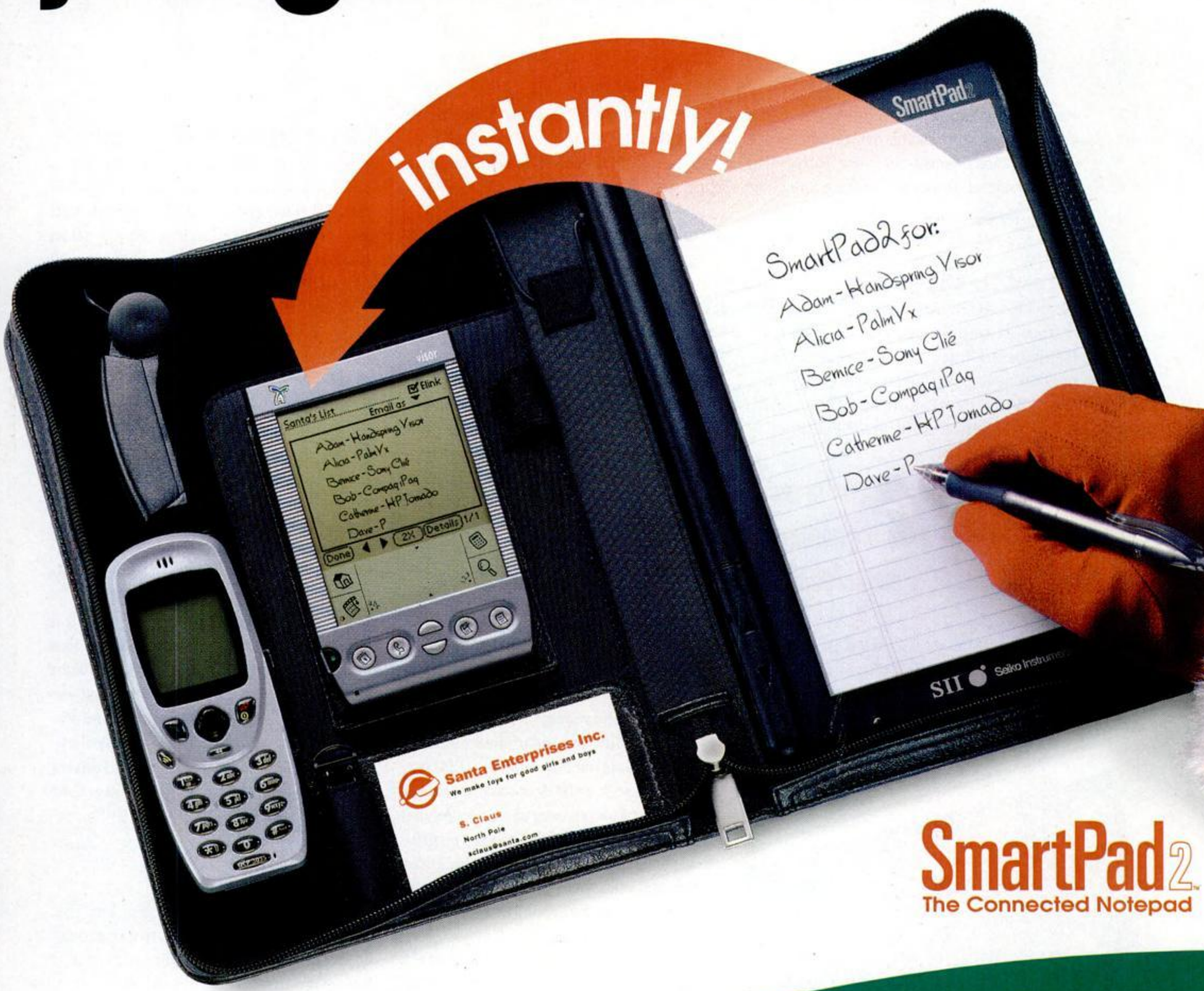
Santa's SmartPad just got smarter.



SmartPad2
The Connected Notepad

It's the coolest gift of the season. SmartPad2™ lets you simply write or draw on a pad of paper and instantly capture everything on your handheld. And now, with the unique adjustable transmitter you can use a variety of handhelds: Handspring™ Visor™, Palm™, Sony® CLIÉ™ or IBM WorkPad®. Even email your handwritten Ink Notes to anyone. Plus, the new Smart Keypad, a full QWERTY key set, makes it easy to tap-type text directly to your Palm OS® fields. So be a smart Santa and get the SmartPad2 today.

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Ask the Doctor

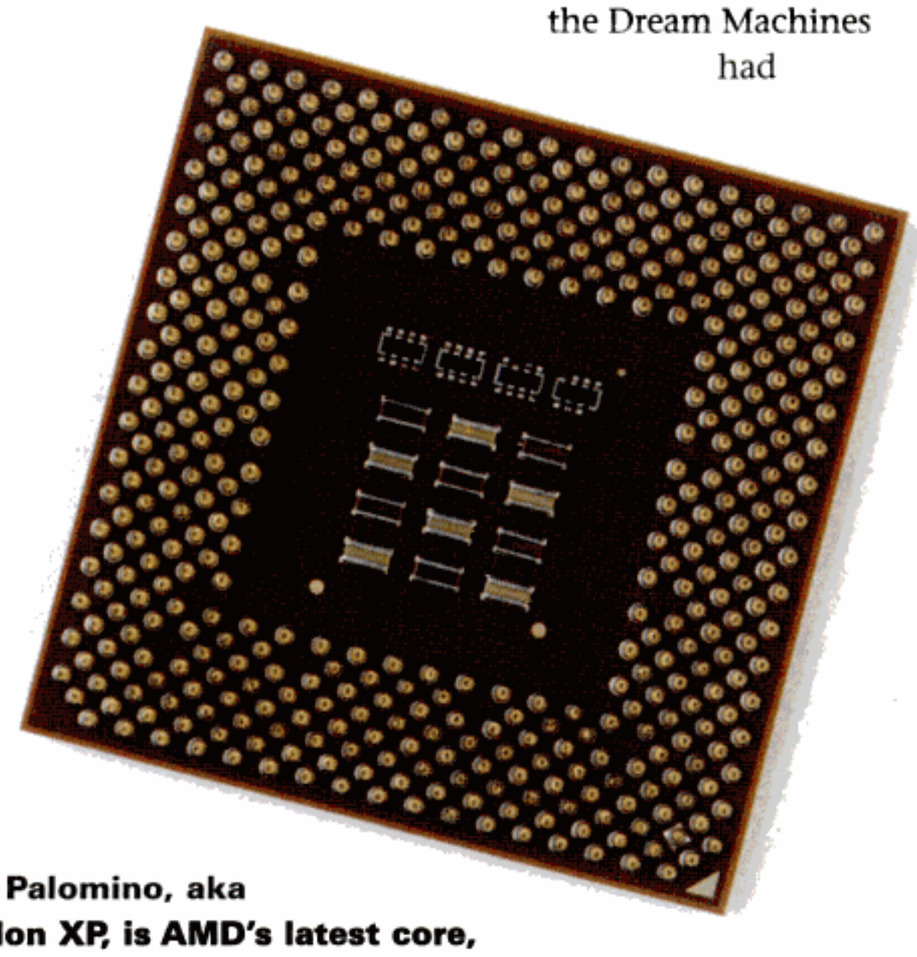
Symptom → Diagnosis → Cure

Have a burning PC problem? How about a burning PC sensation? We're more than happy to help you with your PC problems, but you might want to get that sensation thing checked out by a qualified sensation checker-outer. If you have PC questions, send them to **doctor@maximumpc.com**. Just remember: We can't answer every e-mail. Oh, *no*—not by a long shot.

T-bird in Disguise?

I have a 1.4GHz Athlon CPU. I bought it from an online company that said it was a T-bird, but I've checked the numbers on several different web sites, and they all say it's a Palomino. What's the difference between the two? Did I get cheated on this deal? I tried to find the answers on AMD's web site, but I wasn't able to find out anything about Palomino. My system has been very unstable. I noticed that one of the Dream Machines had 1.2GHz Palominos in it because they support multi-processing configs. I'm only using one processor, could this be the reason my system is unstable?

—CHRIS LIKE



The Palomino, aka Athlon XP, is AMD's latest core, but it may not be compatible with some mobos.

...you may want to talk to the vendor about exchanging the CPU for the correct CPU, or consider upgrading the motherboard.

Not only is Palomino the name of Ernest Borgnine's ship in *The Black Hole*, it's also AMD's code-name for the sequel to the Thunderbird Athlon CPU. In desktop trim, the new proc is named Athlon XP; in workstation trim, it's called Athlon MP. Because your letter arrived before AMD even began shipping Athlon XPs, it's likely you were sold an Athlon MP (assuming you do in fact have a Palomino-class CPU). At press time, Athlon MP was being sold in only 1GHz and 1.2GHz speeds, so it looks like you received a CPU that's either 200MHz or 400MHz slower than what you paid for. But if it's any consolation, data prefetch, 3DNow Pro instructions, and some other tweaks make the Athlon MP faster than a 1.4GHz Thunderbird in some games and applications.

The instability you mentioned could be caused by several factors. First, your CPU may be overclocked by 200MHz to 400MHz (we can only guess at the legitimacy of your online vendor). Second, your BIOS may not be playing ball with the Palomino and needs to be updated. Third, your motherboard's chipset drivers may also be balking at the new proc and need updating too.

The Doctor recommends you first clock your system to 1GHz to be safe, then download H.Oda's *wcpuid* at www.h-oda.com. The utility should tell you what kind of CPU you have. If it's indeed a Palomino, you need to make sure your motherboard is compatible. The majority of mobos that use the Ali MAGiK 1 or AMD 760 chipsets are compatible with Palomino. Unfortunately, some upgraders have reported stability problems when using the Palomino with the VIA KT133A chipset. If you're running the KT133A, you may want to talk to the vendor about exchanging the CPU for the correct CPU, or consider upgrading the motherboard.

Finally, if you determine the chip is a Thunderbird and not a Palomino, your problems lie elsewhere and could run the gamut: a lack of thermal paste on the CPU core, an inadequate heatsink, a weak power supply, bad memory, the wrong chipset drivers, etc.

What Order Art Thou?

I'm in the process of building my first system and was hoping for some assistance. I have an Asus A7V motherboard and an Athlon 1GHz chip. My question involves two of the components I would like to use. The first is an Elsa Gladiac 920, and the other is a Sound Blaster Live! 5.1. I've read about conflicts between these two boards and the VIA chipset on the motherboard. I also want to know the best order for installing my new drivers. Any help you can provide would be greatly appreciated!

—LOONEY

We've not heard of any problems between the A7V and either of those two cards that haven't been fixed with driver updates, so you should be safe there.

As a general rule, as soon as the OS is installed on a system we're building, we load the latest chipset drivers from our motherboard manufacturer. Next we install the latest version of DirectX, followed by our videocard drivers. From that point on, it doesn't really matter what's installed next. Load your sound drivers, network drivers, and drivers for any other hardware you installed.

What Is It about the Green Ones?

I've been trying to fix this problem for some time now: Basically, my computer freezes when I'm scrolling down a web page that's not yet loaded. After the freeze, little vertical green lines sometimes appear at the top of the screen. Have you seen this kind of thing? What can I do?

—ROGELIO GARCIA

We've had the same problem, Rogelio, and we're not sure what causes it. Our guess is that it occurs when there's a bad write to the framebuffer or RAMDAC on the videocard. The good news is that you can fix it without having to reboot. All you need to do is open the Display Properties control panel (right click an empty spot on the desktop and select Properties), go to the Settings tab, and move the resolution down a notch, press apply, then move it back up a notch. This should totally reset the important parts of the videocard and allow you to go back about your business.

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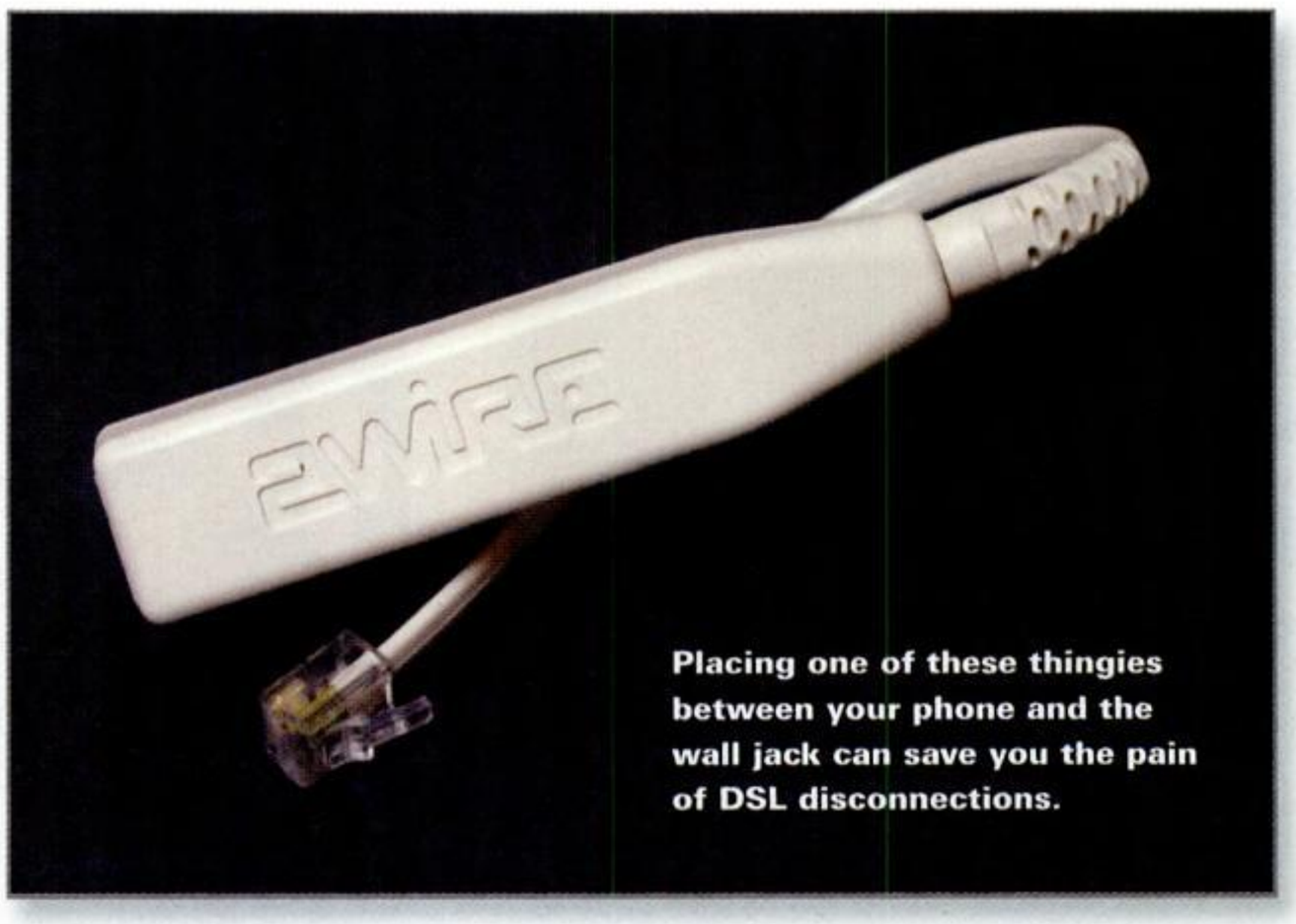
DSL Disconnecting

Ever since we got DSL installed, we've had a strange problem. It intermittently cuts out for varying lengths of time. This ranges from a few seconds to a couple of minutes. Several times I've had to disconnect and reconnect to get it to work again. What's the problem here? Is it my connection or my service (which is through our local phone company)? Is there any way to fix this, short of getting a cable modem? Thanks.

—MICHAEL MILLER



Placing one of these thingies between your phone and the wall jack can save you the pain of DSL disconnections.

The problem could be due to any number of things: service interruptions on the provider level, line noise in your local wiring, a bad jack, or even a phone that shorts out occasionally. But nine out of 10 times, the problem you're describing is the result of a telephone using the same line as the DSL modem.

This is called a "shared-line install" in DSL industry lingo, and if it doesn't work according to plan, your DSL might conk out when you're on the phone or whenever the phone rings. To fix the situation, get a $3 DSL line filter from Radio Shack for each line in the house that runs between a wall jack and a phone (make sure you don't touch the line between the wall jack and the DSL modem). This filter keeps phone users from hearing DSL noise and vice versa.

If that doesn't fix your problem, you're going to need to call your friendly, neighborhood telephone company and complain. They'll send out a technician with an expensive line tester that will diagnose your problem more accurately than you can.

Overclocking No-Go

My PC uses generic PC133 memory. I'm starting to fool around with overclocking, but sometimes get errors and crashes. I have a 1GHz Pentium III and an Asus CUCL-C motherboard. I read once that good memory is really important for overclocking systems. Is this true? If so, what memory should I use?

—BENJAMIN ALVAREZ

There are a few things that could prevent you from overclocking successfully. The first is CPU choice. If you have an early Pentium III Coppermine that runs on a 133MHz bus, it simply may not overclock well. In fact, Intel had to recall the first 1.13GHz P-IIIs because they wouldn't run reliably at that speed. It's also possible your memory isn't up to the task. If you want to ensure that you can overclock the memory beyond 133MHz, buy PC150. It uses a technology from TinyBGA that lets RAM run safely at up to 150MHz. Otherwise, the Doctor's top choice for overclocking memory is Corsair memory (www.corsairmicro.com).

You should also realize that because you're overclocking by increasing the bus speed (all public Intel chips are "clock-locked" and can't be overclocked by changing the CPU multiplier), you're also overclocking most of your components. In other words, if you're running the PCI bus at 35MHz or 37MHz (which is 2MHz and 4MHz beyond spec), your NIC, soundcard, etc., are *also* being asked to run beyond spec. So one of these add-in cards could be the culprit.

I tossed the drive in the fridge for 20 minutes...

And of course there's always the looming threat of heat. Whenever you overclock, your CPU generates more heat. You may want to consider additional case cooling and a better CPU heatsink. ■

READER TIPS

Occasionally the Doctor gets an awesome tip from a reader, via either our online forums (www.maximumpc.com) or e-mail. If you've got a great tip, send an e-mail to *doctor@maximumpc.com* with the subject "Reader Tip." Be sure to include your name and phone number. The best ones will be printed in future issues.

Ice a Bad Hard Drive

The other day, my friend's older SCSI hard drive stopped working. It didn't make any of the usual unpleasant mechanical sounds; it just wasn't detected when the SCSI card initialized. Unfortunately, he had a couple important files on it that he hadn't backed up recently.

I was pretty certain the problem was the controller card, so I decided to try something I had read about a long time ago. On the off chance the controller card was heat-sensitive, I tossed the drive in the fridge for 20 minutes, then spun up the drive again while it was still cold. That gave us about 10 more minutes of life out of the drive, which was more than enough time to recover the data we needed.

—NATHAN CLEMONS

How To... A step-by-step guide to tweaking your PC Experience

HOST THE ULTIMATE LAN Party

The 10 essential ingredients of a perfect multiplayer gaming fest

BY WILL SMITH

There's a lot more to LAN partying than just outfitting your basement with extension cords and making sure everyone brings his own PC, network card, monitor, and headphones. Whether your LAN party consists of seven people in a cellar or 1,000 people in a convention center, you need to be prepared for just about anything. To learn the full poop on LAN party hosting, we consulted with John "EvilJohn" Carney and Brian "Trapper" Davis, two of the masterminds behind QuakeCon, the mother of all LAN parties that's hosted by id Software and attracts more than 1,000 multiplayer gamers every year.

1 POWER REQUIREMENTS

Power is key, so make sure your electricity situation is stable. Each circuit in your home is controlled by a single circuit breaker (or fuse, in older buildings). These breakers are designed to stop the electrical current if a dangerous amount of power is coming down the line. The secret to not tripping a circuit breaker is amperage control. In most buildings, each circuit powers more than one set of electrical outlets, so you need to know which plugs are on which circuits and how much amperage each circuit can take.

To determine your circuits' tolerance, first find your breaker box, usually located in the basement or a utility closet. Your breakers should be labeled with descriptions of the outlets they control, but if they're not, there's a way to figure out that relationship. Simply plug lamps and radios into each electrical socket you intend to use for the party, then power them up. Now return to your breaker box, and turn each breaker off, one at a time, to determine which sockets are controlled by which breakers. DO NOT do this if you have a fuse box, as you might electrocute yourself.

So how many PCs can a typical circuit support? Look at the circuit breaker or fuse to see what it's rated for. A 20-amp breaker will trip when 20 amps of juice are passing through that circuit. Experiments showed that our Pentium 4 test beds (complete with 19-inch monitors) drew around two amps while playing games (300W PC power supplies are capable of drawing between six and nine amps at peak output). We weren't able to get our PC/monitor combos to draw more than three amps. Bottom line: You should be able to power at least five PCs off a single 20-amp circuit if you don't have anything else connected to that circuit.

If the size of your LAN party exceeds the power tolerance of the circuits in your party room, simply run heavy-duty extension cords from your kitchen, bedrooms, or bathrooms to the party room. Split up the computers among the different circuits. If your party will be in the local Moose Lodge, you may need to rent some generators, available at most places that rent heavy equipment. If none of this makes sense to you, you'd do well to befriend a professional electrician. Electricity can kill—treat it with respect.

HERE'S HOW TO PREPARE AN ETHERNET CABLE IN THREE EASY STEPS

1 First, use wire snips to cut your wire flush. Then use the trimming knife to trim the last half-inch of outside insulator.

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2 NETWORKING GEAR

Designing a network for a LAN party can be as simple as connecting four or five machines to a hub, or as complex as connecting several hundred machines to a Gigabit Ethernet backbone, with multiple redundant connections from point to point, and a 10Megabit connection to the Internet. If you intend to go the complex route (or have no networking experience whatsoever) consult an experienced network engineer.

But if you're hosting a smallish party and have some networking knowledge, follow these tips.

First, make sure each client station has enough bandwidth to all the servers on the LAN. Start by dividing your party area into sub-areas. You'll want to run high-speed Ethernet (at least 100Mbit) from each of these areas to your main switch, which is where you'll tie each individual sub-area into your servers. As people arrive to your LAN, they can tie into the areas you've already delineated, and as more people congregate, you can add more backbone links to different areas, or add more hubs to accommodate more users.

You'll need someone with networking savvy to pre-plan what protocols to set up on your LAN, as well as someone who can set up DHCP and DNS servers to assign IP addresses to each PC that connects to the LAN.

4 VITAL CABLING SUPPLIES

Nothing puts an end to a LAN party quicker than having to dash to CompUSA for a patch cable—so make sure you're well-equipped with everything you need to make your own. Here's our list of bare minimums:

- Wire snips
- RJ-45 crimper
- Phillips screwdriver
- Pliers
- Spool of CAT-5 Ethernet
- Duct tape (for taping down loose cables)
- Bag of RJ-45 ends
- First aid kit (you never know when a trimming knife will turn on you)

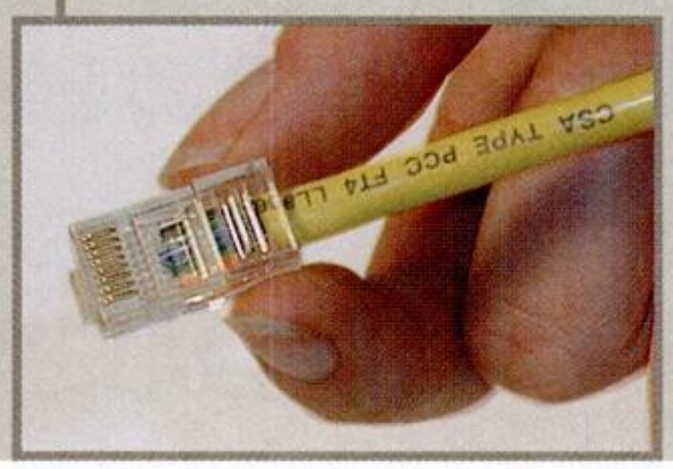
3 SERVER REQUIREMENTS

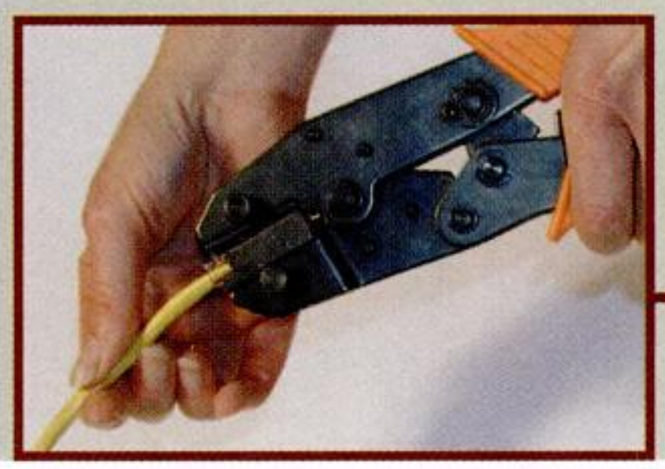
For *Quake*-, *Unreal*-, and *Half-Life*-based games, a dedicated server is de rigueur. It doesn't have to be an enterprise-level server that can power an entire Fortune 500 company, but it does have to be sufficiently powerful and reliable to last through the weekend, and it helps to run a solid OS, such as Windows 2000, Windows XP, or Linux.

The first thing you need to ascertain is that you can run more than one game server on each machine that's been assigned server duty. This means that while you might have only one or two actual server boxes, you can run as many individual game servers as you want on each of those machines—assuming you have the server power. As a general rule, your server needs 30MHz of processor speed and 10MB of RAM for every client machine being served. If your server is overstressed, people will complain about packet loss, high pings, and overall unpredictable lag.

You may be interested to know that game server software can leverage dual-processor rigs to great effect, so you can connect many more clients to a dual-1GHz server than to a single 2GHz server. It's also worth noting that it's much less server-intensive to run eight 8-client *Quake* servers on one machine, than to run a single 64-client *Quake* server on one machine. If you want to get the most bang for your buck, run a whole bunch of game servers that accommodate just a few connections.

2 **Now line up the wires. Each wire needs to go into its own groove, and you need to make sure the pairs line up correctly.**





The first pair (usually orange and orange/white) will take the first and second slots from the left side. The second pair (green and green/white) takes the third and sixth slots. The third pair (blue and blue/white) gets slots four and five, while the brown and brown/white pair uses slots seven and eight. If you want to make a crossover cable, reverse the first and second pairs on one end of the cable.

3 **To finish off the cable, make sure each cable is in the appropriate slot and pushed in as far as possible, then slide the RJ-45 slot into the crimper, and mash.**

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5 CASHING IN

Setting up a LAN party can be like shoveling large piles of cash into a bottomless pit. QuakeCon and other large LAN parties solicit sponsors, such as id Software or nVidia, to help defray some of the larger costs. They also rent part of their floor space to hardware manufacturers and game developers who want to show off their wares. Of course, that isn't an option if you're running a small, private LAN party, but you still might be able to get a local computer or gaming shop to pitch in with a sponsorship if you can guarantee a certain attendance. (NOTE: *Maximum PC* can no longer sponsor LAN parties or even provide free T-shirts as prizes—our sponsorship well has run dry!) If you can't retain sponsorship, you might consider asking attendees to defray the cost of incidentals. Charging a single ticket price is probably the smoothest way to get the cash flowing into the kitty.

Remember that getting people to your party is half the battle. If you plan on hosting more than just your friends and acquaintances, you need to let the general public know about your event. Be sure to post flyers in typical gamer hangouts, such as PC screwdriver shops, gaming stores, and the computer science department of your local college.

Good

Bad

6 ERGONOMIC ACCOUTERMENTS

A sturdy folding table is more than sufficient to hold two or three computers. But where will people sit? Unfortunately, those finger-mashing, metal, folding chairs favored by aggro pro wrestlers aren't well-suited for PC gaming. Endless hours sitting on uncushioned metal can numb even the most hardened gamer's ass.

That's why a considerate host will rent cheap office chairs for attendees. Check the yellow pages for Office Furniture Rental, and make sure you factor the cost of the chairs into your party ticket price. You should also purchase insurance with the rental, as several of the chairs will surely be destroyed by pizza, Hawaiian Punch, or natural disaster.

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www.linhaw.com

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7 JUNK FOOD

A LAN party just ain't a LAN party without a generous supply of junk food. After all, you'll need a lot of fat and carbs to make it through a 24-hour *Quake III* marathon. Here's a breakdown of a day's worth of LAN party munching.

	Normal dude	LAN Party dude
Breakfast	Bowl of oatmeal, banana, orange juice Total Fat: 2g Total Calories: 336	4 slices of meat-laden pizza, 3 20oz. Dr Peppers, 6 Oreo Doublestuf cookies Total Fat: 105g Total Calories: 2893
Morning snack	Coffee, 1 donut Total Fat: 12g Total Calories: 210	4 Donuts, 2 PowerBars, 1 20oz. Coke Total Fat: 53g Total Calories: 1650
Lunch	Turkey sandwich, iced tea, fruit salad Total Fat: 29g Total Calories: 877	1 pint of Ben & Jerry's Heath Bar Coffee Crunch ice cream, 2 16oz. bottles of Mountain Dew Total Fat: 72g Total Calories: 1515
Afternoon snack	Pretzels, Diet Coke Total Fat: 10g Total Calories: 110	1/2 lb. beef jerky, 12oz. bag of Cheetos, 2 Hostess Lemon Fruit Pies, 1 2L bottle of Coke Total Fat: 152g Total Calories: 3768
Dinner	Fettuccine Alfredo, Caesar salad, Diet Coke Total Fat: 29g Total Calories: 700	Double Quarter Pounder, super-size fries, 1 large chocolate shake, 2 Hot Apple Pies Total Fat: 115g Total Calories: 2910
Late night snack	1 glass of water. Total Fat: 0g Total Calories: 0	Denny's Grand Slam breakfast, 3 24oz. Dr Peppers Total Fat: 50g Total Calories: 2145
Total	**Total Fat: 82g Total Calories: 2256**	**Total Fat: 547g Total Calories: 14881**

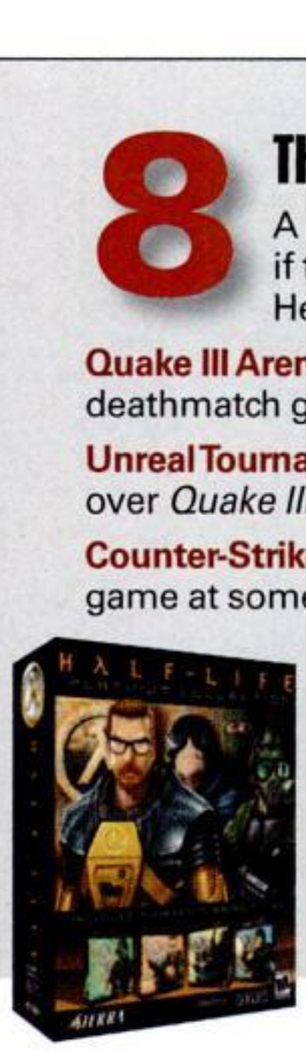
8 THE GAMES

A LAN party is a success only if there are games for everyone. Here are our favorites.

Quake III Arena The premiere one-on-one deathmatch game.

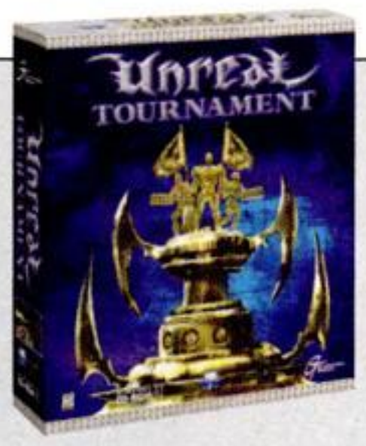
Unreal Tournament Some people prefer *UT* over *Quake III*. Simple as that.

Counter-Strike You'll need a team-oriented game at some point during the night.



Day of Defeat Another team-based game, but it's class oriented.

Team Fortress Classic This one is too popular to ignore. Expect someone to demand to play it.



Diablo 2 A quick round will squelch the demands of those stinking, dirty RPGers.

Worms Armageddon Any *Worms*-based game can help relieve the tedium of a blood-drenched LAN party.

A Blizzard RTS, such as Starcraft When your reflexes are shot, a realtime strategy game can help slow the pace until you're ready for more *Quake III*.

A Westwood RTS, such as Tiberian Sun or Red Alert 2 Hey, some people don't like Blizzard's take on RTS.

9 COOL GEAR

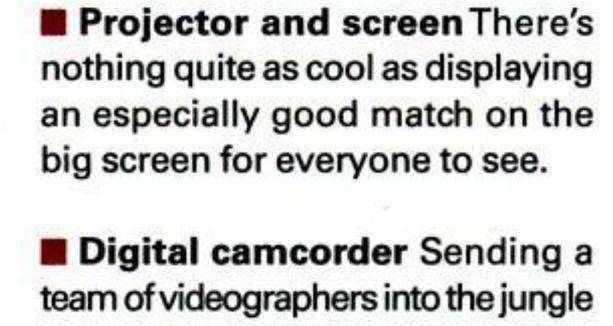
No LAN party is complete without superfluous yet ludicrously expensive pieces of equipment. Here are the top five items we think no LAN party can do without.

■ **Projector and screen** There's nothing quite as cool as displaying an especially good match on the big screen for everyone to see.

■ **Digital camcorder** Sending a team of videographers into the jungle that is your LAN party will result in hours of entertainment later.

■ **Videocapture card** A good vidcap card will preserve those special LAN party moments (and championship matches) for you and your guests to cherish.

■ **Walkie-talkies** When you've got a team of volunteers spread over a 10,000-square-foot space, you can't simply shout across the room. We like the Motorola Talkabout radios for quick communication.



■ **Nerf guns** During stress-filled moments, there's only one thing that can raise your troop's morale: Nerf guns! There's nothing quite like a 3 a.m. Nerf fight to perk up everyone.

10 "ARGHHH!"—THAT'S HOW IT ALWAYS STARTS.

Before the first gamer arrives with his tricked-out, 1.4GHz T-bird in a custom box, you need to know what to do in case of an emergency. Here's a list of ways to cope with nightmarish scenarios.

POWER OUTAGE Make sure you know where all the fuses and circuit breaker boxes are in your building (and have extra fuses ready if applicable). Overloading the power supply in a 30-year-old building is a strong possibility, so be ready before it happens.

NETWORK OUTAGE Make sure you have the appropriate equipment and personnel around at all times in case there's a network outage. People don't come to LAN parties to play *Quake III* single-player.

HEALTH PROBLEMS Make sure you have a first aid kit, complete with aspirin, antacids, and bandages. The larger your LAN party, the more likely it is that someone will get hurt.

ACT OF NATURE If there's a hurricane, tornado, earthquake, or locust infestation, you can't do much except make sure the exits are known to everyone.

Running a massive LAN party isn't an easy thing, but if you do your homework and remember you're just there to have fun, you should survive the experience with a minimum of personal injury and heartache. ■

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In the Lab

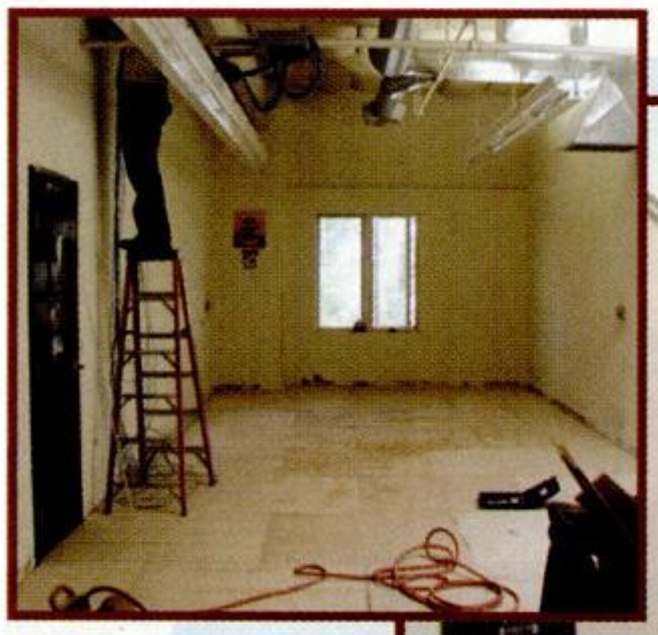
A behind-the-scenes look at Maximum PC testing

Absolutely Labulous!

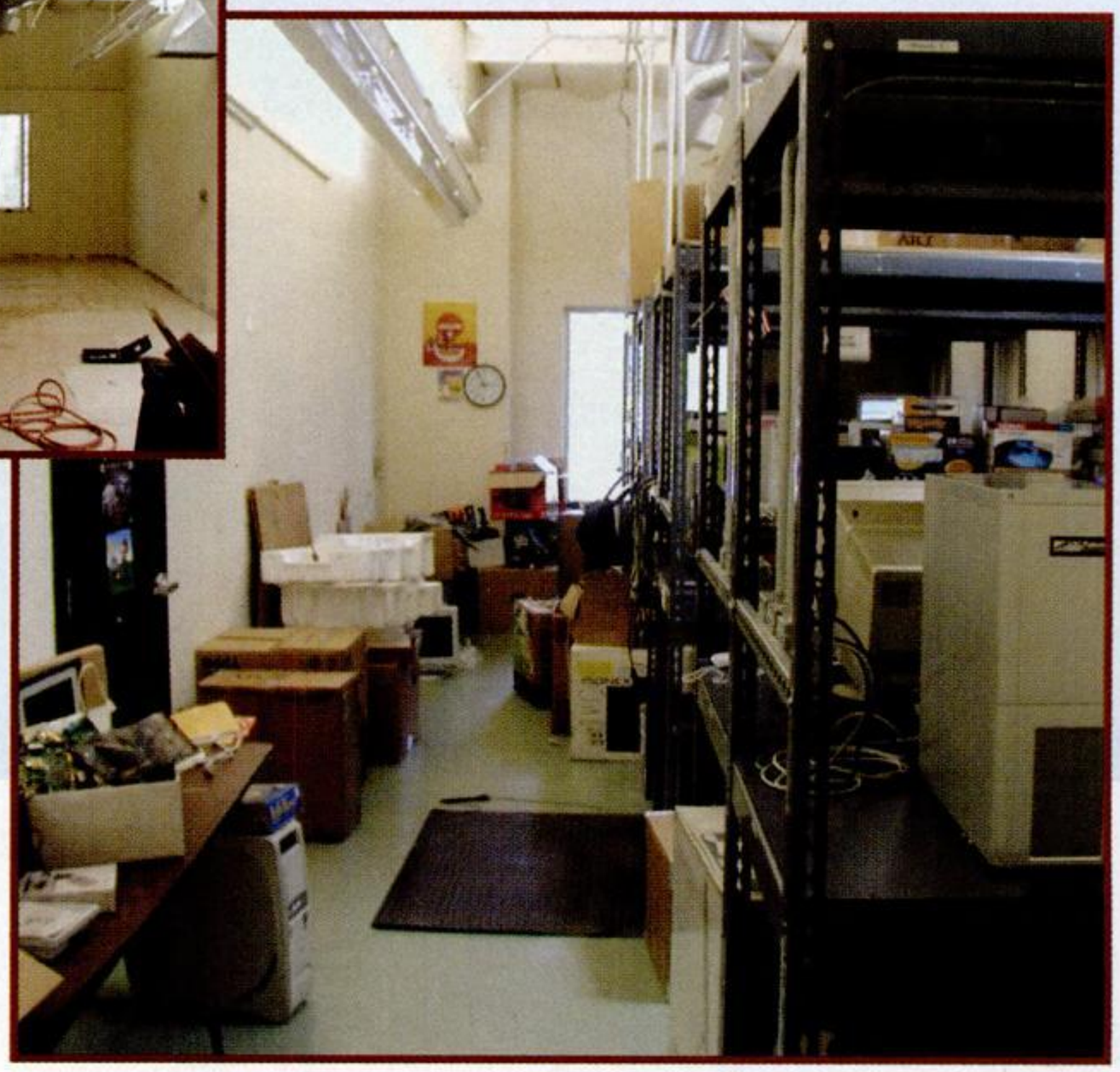
Someone call the old lady with the champagne bottle—the new Maximum PC Lab is ready for its grand christening!

About four months and seven days ago, we moved our editorial offices from the first floor to the second floor of Imagine Media HQ. Unfortunately, our Lab stayed on the first floor, and so began a taxing regimen of running up and down the stairs whenever we needed to go from one area to the other. Will and Gordon lost some weight, Logan began eating even *more* roach coach food to compensate for all the burnt calories, and Jon's knees suffered ligament damage he wouldn't wish on Derek Jeter (Jon is an Oakland A's fan, so that's saying a lot).

Fortunately, last month marked the last episode of "Stair Trek." We're happy to report that the new Maximum PC Lab is now open and ready for business. It's on the second floor and wedged directly between our editorial offices and the Imagine Media kitchen—which means editorial weight gain is just a few Pop Tarts away!



Here's the new space before the contractors filled it with workbenches, electricity, and Ethernet. If you're a student of Imagine Media history, you might recognize this room as the original home of our *Dreamcast* and *X-Box* magazines.



Once all the construction and wiring was complete, it took about three ticks of a system bus clock to fill the Lab's workbenches with assorted componentry and junk.

Our electrician set up the Lab with 180 amps total. Each workbench gets eight power outlets and four 100Mbit Ethernet ports. One dirty, stinking analog phone line serves the entire work space.

Each workbench is bolted down with four floor bolts and four wall bolts. Guess we'll learn more about the benches' structural rigidity when the Big One hits.

How will Gordon ever get his case reviews done if he doesn't actually build his PCs inside of cases?!

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CPU ALERT!

Hammer Time

Introducing AMD's P4 Killer

AMD has finally released more details on its upcoming "Hammer" architecture, which will replace the technology used in the Athlon XP CPU. Here are the highlights:

■ AMD will integrate its own high-speed interface, HyperTransport, into the core to serve as the main communications route between the CPU and its core-logic chips. L2 cache is expected to be as high as 1MB.

■ The new core's "x86–64" technology promises to handle current x86 code efficiently and without the use of emulation, as well as add 64-bit addressing for large memory applications. Support for Intel's SSE and SSE2 instructions will also be included.

■ AMD plans to introduce the 64-bit Hammer core in everything from servers and workstations to desktops and high-performance notebooks. The new chip will sample in the first half of 2002, with production slated for the second half of that year.

■ To help alleviate the always-looming system memory bottleneck, AMD will integrate a DDR memory controller directly into the Hammer die. The controller will support single- and dual-channel DDR up to PC2700 and should relieve latency and increase bandwidth in multi-proc configs.

■ Hammer will employ a 12-stage pipeline. The Athlon XP's pipeline tops out at 10 stages and is already being cited as the reason AMD can't compete with Intel on the clock-speed front. So will 12 stages be enough? The Pentium 4, after all, boasts 20 stages. AMD says not to worry—Hammer's performance will meet that of its competition.

TESTED & GEEK APPROVED

GearGrip CRT Harness

The problem with 21-inch monitors isn't so much that they're heavy, but rather that they're unwieldy—it's just plain difficult to wrap your arms around a mongo CRT and navigate your way from one place to another. But that's where the GearGrip comes in. Just strap your monitor inside the GearGrip's 2-inch harnesses, then grab the handle. Your display can now be easily transported with a single hand (assuming you have the deltoids for the job). Perfect for LAN party convoys. $27, www.geargrip.com

[LONG-TERM ROAD TESTING]

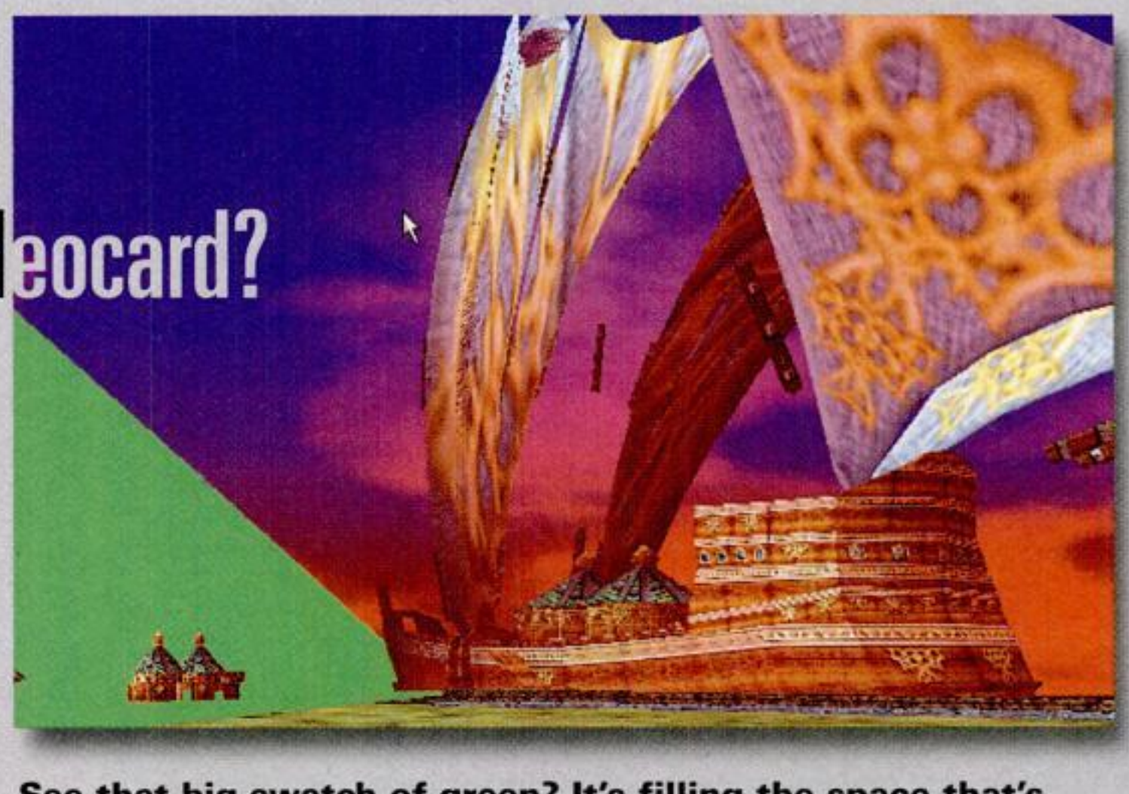
Can New Drivers Fix a Broken Videocard?

THE PRODUCT: Hercules Prophet 4500
ORIGINAL VERDICT: 6 (July 2001)

WHAT WE SAID THEN: "Although the 3D Prophet 4500 turned in better frame rate performance [compared to a GeForce2 MX–based card], we're reluctant to recommend any videocard based on the Kyro II chipset. We remember earlier iterations of the chipset (then called PowerVR) that left hapless users unable to play new releases for months.... We can't recommend the Prophet 4500 (for now)."

FIVE MONTHS LATER: The good news is that the Prophet 4500 now has stable Win98 and WinME drivers. The bad news is we've discovered that its Win2000 and WinXP drivers have severe problems. In games like *Black & White* and *Everquest*, the 8.162a driver actually displays the lines that define 3D meshes (it should be noted that we saw these problems only in games, not in our benchmarking software). And here's another knock: The latest Detonator XP drivers make GeForce2 MX boards run so fast, the low-end nVidia-based boards have actually stolen the budget speed crown from the Prophet 4500.

WHAT WE THINK NOW: We're now confident our original concerns about the Kyro II drivers were justified. In July, when we first looked at the Prophet 4500, it was the fastest budget card available, which was worth an extra verdict point, despite a few minor graphical glitches. Unfortunately, those minor graphical glitches have swollen to massive graphical flaws, and that knocks the Kyro II out of contention.



See that big swatch of green? It's filling the space that's supposed to be occupied by a beautiful sunset. This screenshot from *Everquest* is just the tip of the iceberg; the Kyro II renders other important games improperly, as well.

DARE TO COMPARE — PROPHET 4500 DRIVER VERSIONS

	WinME: original boxed driver	WinME: new 8.162a driver	WinXP: new 8.162a driver
Quake III MPC Demo	27.1fps	30.9fps	41.9fps
3DMark2001 Game 2	12.4fps	10.7fps	1.8fps

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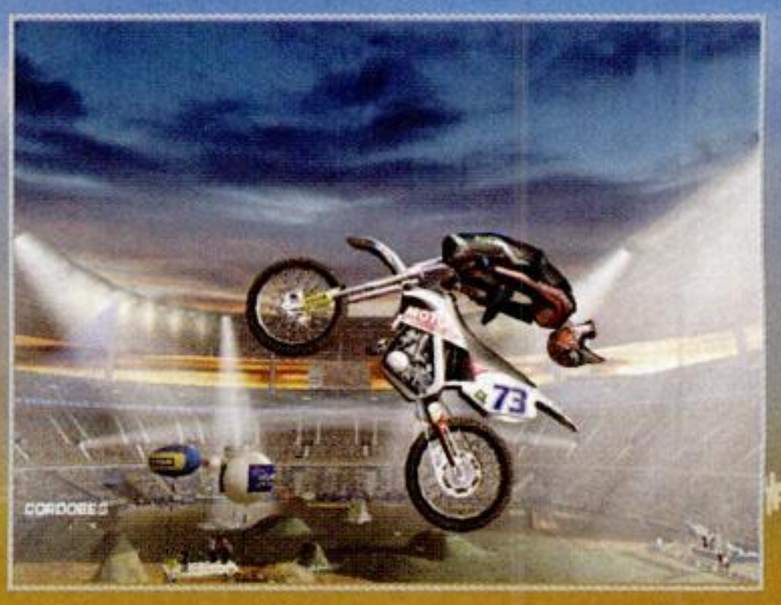
MOTO RACER 3™



THE ULTIMATE RACING EXPERIENCE IS BACK!

Moto Racer 3 sends players into an ultra-realistic world of motor biking. With such features as photo-realistic tracks reproduced on location, real motorbike physics simulations, TV quality replays, realistic movements of riders and more.

- 6 blood-pumping racing styles, – *Street, Motocross, Supercross, Freestyle, Trial* and the all new, never before seen *Traffic Mode* through downtown Paris
- 15 tracks with 32 all-new bikes immerse players in completely different racing environments, such as Grand Prix, touring, indoor, outdoor and more
- High quality graphics using the latest modeling and rendering techniques
- Multi-player with up to 8 bikes via LAN or the Internet

PC CD ROM

EVERYONE E CONTENT RATED BY ESRB

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Dell Dimension 8200

A few components shy of perfection

Dell's Dimension 8200 packs a GeForce3 Ti 500 and a 2GHz Pentium 4, making it the fastest *Quake III Arena* gaming machine we've ever seen.

If you think Dell makes only conservative, beige boxes packed with antiquated hardware, you need to reassess your belief system, if not your entire worldview. The new Dimension 8200 is packed with much PC goodness and goes a long way toward atoning for the sins of the PC133-based system we reviewed last month.

Dig the parts list: Pentium 4 2GHz? Check. Socket 478 motherboard? Check. GeForce3 Ti 500 videocard, 100GB Western Digital hard drive, and 256MB of PC800 Direct RDRAM memory? Check, check, and check-a-rooney. You also get an NEC 24/10/40 CD-RW drive (those are state-of-the-art specs, folks) and Windows XP, the first Microsoft OS that's good enough to warrant mention in the body of one of our system reviews. In many ways, the 8200 is bulletproof, and you have to give Dell credit for flexing its OEM muscles to snag nVidia's rarefied new videocard.

But in other ways, the 8200 falls just a bit too short of perfection. First, we're still not happy with Dell's new case design. The thing looks cool, but it's still a mother to open and offers a cramped work space. Only its handy drive rails really get us excited. Second, Turtle Beach's venerable Santa Cruz 5.1 handles soundcard duties, but we would have preferred a Sound Blaster Audigy. It looks like Dell is still qualifying Creative Labs' awesome new card. (Driver issues, perhaps? We wouldn't be surprised.) Altec Lansing's new 5.1 ADA995 speaker system brings up the rear. Though the speakers are superior to the previous ADA885 system, they're still no match for the Klipsch 5.1s.

Comparisons between the 8200 and the Falcon Northwest rig on the following page are inevitable, but perhaps a bit unfair considering that Falcon's Mach V is very much a custom PC that's been primped and preened for gaming. The 8200 doesn't have an overclocked videocard (and thus lost to the Mach V in *3DMark2001*), but it does have a faster-clocked CPU in its 2GHz P4 and took the CPU-intensive *Quake III Arena* test as a result. With four fewer fans, the Dimension 8200 is also noticeably quieter than the Mach V.

Instead of striping two hard drives in a RAID 0 array, Dell took the safe route with a single 100GB Western Digital WD1000BB. This 7200rpm drive generally offers performance equal to a single, non-striped IBM 60GXP, as well as greater capacity. The Mach V's striped array is certainly faster, but some people lean toward the side of prudence and prefer to leave pesky RAID issues out of the equation entirely.

UNDER THE HOOD

THE BRAINS	
CPU	Intel 2GHz Pentium 4 in Socket 478
Motherboard	Dell-branded board with Intel 850 chipset
RAM	Two 128MB PC800 RDRAM RIMMs
I/O ports	One parallel, one serial, four USB 1.1, (two front mounted) front-mounted headphone out, Fast Ethernet, TV out, DVI, mic in, line in, two speaker out
Open slots	Two PCI, two RIMM
DISPLAY	
Videocard	nVidia GeForce3 Ti 500 64MB DDR
Display	Dell P991 19-inch flat screen
Refresh @ max res	75Hz@1600x1200
STORAGE	
Hard drive	100GB Western Digital WD1000BB (7200rpm)
DVD-ROM	NEC DV-5800A 16
CD-RW	NEC NR-7900A 24/10/40
NETWORKING	
LAN	3Com 3C905B 10/100 Ethernet
SOUND	
Soundcard	Turtle Beach Santa Cruz 5.1
Speakers	Altec Lansing ADA995
MOUSE	
Microsoft IntelliMouse Explorer 3.0	
KEYBOARD	
Dell USB with two USB ports	
BUNDLE	
Microsoft Windows XP Home, Microsoft *Works, Money, Streets, CyberLink PowerDVD,* Roxio *Easy CD Creator 5.0v*	
BOOT: 36 sec	**DOWN: 28.5 sec**

MAXIMUM PC KICK ASS PRODUCT

The Dell 8200 trailed the superhot Mach V in Adobe *Premiere 6.0*, *Audiograbber,* and *3DMark2001* (we must note, however, the *Audiograbber* and *3DMark2001* losses were photo-finish heartbreakers). The 8200 also trailed by nine points in *SYSmark2001*'s overall scoring, but its final mark of 181 points doesn't tell the whole story. The P4-based 8200 actually beat the Athlon XP–based Mach V in the Content Creation portion of *SYSmark2001* with a score of 202 to the Mach's 188. But as one might expect, the 8200 got trounced in the Office Productivity tests with a score of 163 to the Mach V's 192. The P4 is practically *de*-optimized for bland apps like Microsoft *Word* and *Excel,* so the loss was preordained.

When all is said and done, we have to give props to the Falcon Mach V for having several hotter components—the Audigy soundcard, the Klipsch 5.1 speakers, and the Cooler Master case. The Dell does have better memory expansion opportunities than the Mach V, but who needs more than 512MB of RAM? If you're looking for a solid performer that's inexpensive and just happens to rule in *Quake III,* Dell's 8200 wins handily.

—GORDON UNG

MAXIMUMPC VERDICT

Dimension 8200
DELL

WHAT WE LIKE

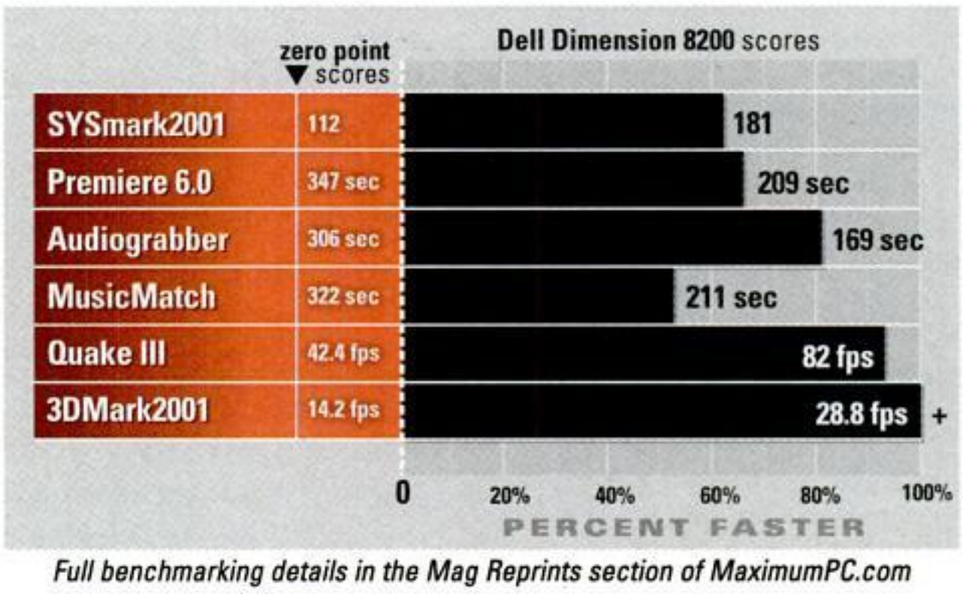
The 2GHz Pentium 4, GeForce3 Ti 500, and 24x burner give you a state-of-the-art system from a company with a proven support infrastructure.

WHAT WE HATE

Too many penultimate components. And why only four PCI slots?!

800.915.3355 www.dell.com
$3,049

9



Full benchmarking details in the Mag Reprints section of MaximumPC.com

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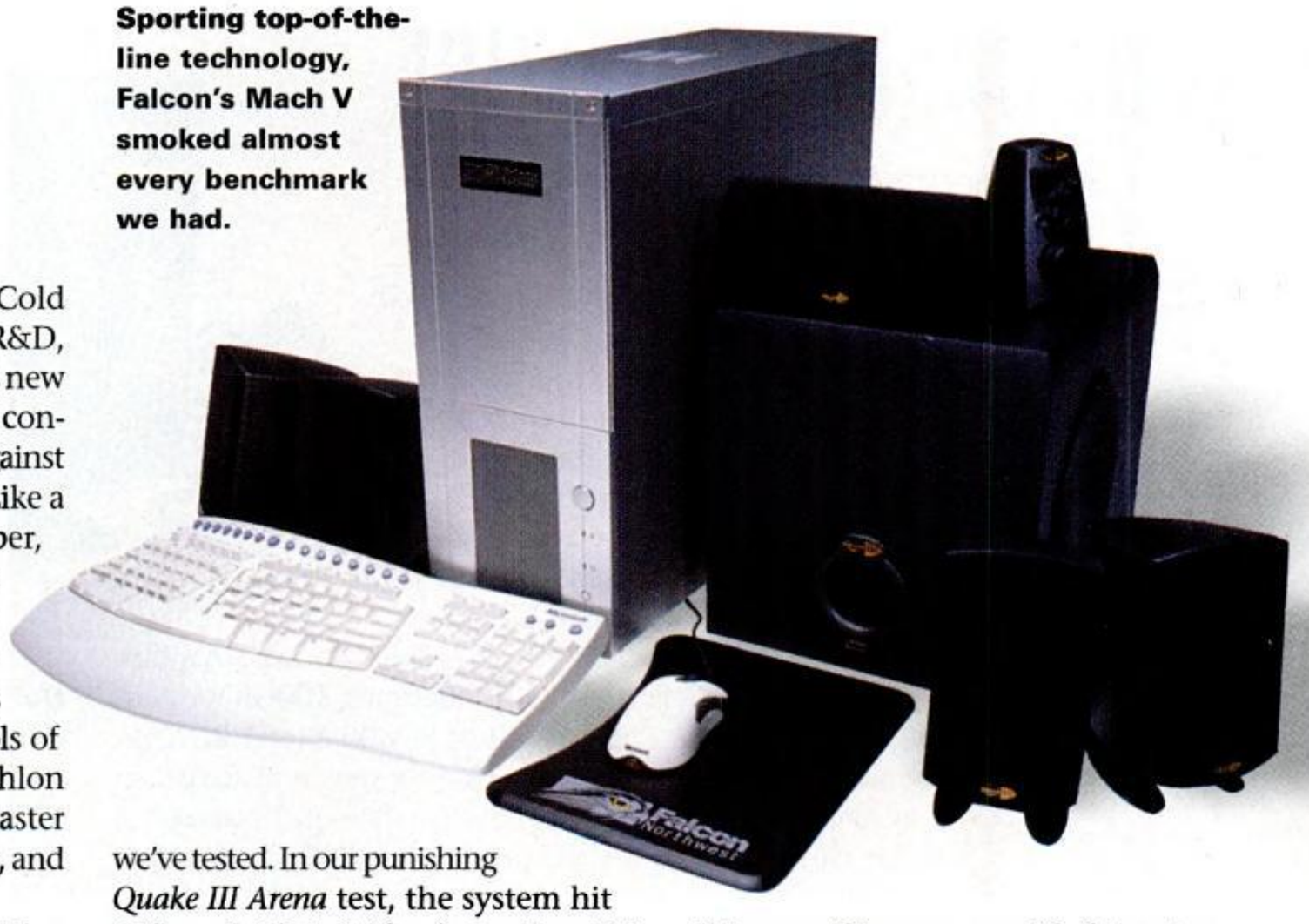
Falcon Mach V

The definition of "air superiority"



Sporting top-of-the-line technology, Falcon's Mach V smoked almost every benchmark we had.

If you thought the end of the Cold War meant a halt to weapons R&D, think again. Falcon Northwest's new Mach V proves that plenty of cash continues to flow into the campaign against the tyranny of slow 3D gaming. Like a freshly declassified fighter-bomber, the system swooped in and precision-bombed nearly every benchmark record in existence. And why shouldn't it have? The Mach V is equipped with the very latest tools of a free nation: a "Model 1800+" Athlon XP, a GeForce3 Ti 500, a Sound Blaster Audigy, a Plextor 24x CD-RW drive, and Klipsch 5.1 speakers.

UNDER THE HOOD

THE BRAINS	
CPU	Athlon XP Model 1800+ (1.55GHz)
Motherboard	Gigabyte GA-70X
RAM	Two 256MB PC2100 DDR DIMMs
I/O ports	Two USB, two serial, one parallel, PS/2 keyboard and mouse, one game port, one Ethernet, IEEE-1394, line in, line out x 3, S/PDIF
Open slots	Two PCI, zero memory
DISPLAY	
Videocard	nVidia GeForce3 Ti 500 64MB DDR
Display	Monitor available but not reviewed
STORAGE	
Hard drives	Two 40GB IBM Deskstar 60GXP (7200rpm), Promise IDE RAID add-in card
DVD-ROM	16x Toshiba SD-M1502
CD-RW	Plextor 24/10/40
NETWORKING	
LAN	Realtek RTL8139 Fast Ethernet
SOUND	
Soundcard	Creative Labs Audigy
Speakers	Klipsch 5.1
MOUSE	
Microsoft IntelliMouse Optical USB	
KEYBOARD	
Microsoft Natural Pro PS/2 and USB	
CASE	
Cooler Master ATC-110 w/350-watt Enermax power supply	
BUNDLE	
Microsoft Windows XP Professional, Cyberlink *PowerDVD 2.55*	
BOOT: 53 sec.	**DOWN: 27 sec.**

Falcon Northwest has been building elite gaming rigs for many, many years, so perhaps its long-standing relationship with component vendors helped it snare such freshly minted hardware ahead of other system OEMs. The new rig's most exciting components are of course the Athlon XP and the GeForce3 Ti 500. The CPU is spec'd to hit 1.53GHz, but because of Falcon's use of an early BIOS version, our system was slightly overclocked to 1.55GHz. The GeForce3 Ti 500 was intentionally overclocked. The "Ti 500" revision of the original GeForce3 is defined by faster core and memory frequencies, 240MHz and 250MHz, respectively. Falcon, however, throttled up nVidia's latest to a 250MHz core and a 268.5MHz memory speed. Falcon assures us the OC'd card is fully covered under its warranty policy.

In our *3DMark2001* DirectX 8 gaming test, the Mach V fired out an amazing 31.2fps—that's about a 50 percent spike over the fastest machines we've tested. In our punishing *Quake III Arena* test, the system hit 79fps, which is 9.4fps faster than this year's gaming Dream Machine and 18fps faster than the 1.7GHz P4-based Hypersonic rig reviewed in October. But even an overclocked videocard couldn't help the Mach V beat the 2GHz Dell machine reviewed on the previous page. The Dell's GeForce3 Ti 500 isn't overclocked, but the rig's Pentium 4 helped ensure a 3fps victory in the CPU-intensive *Quake III Arena* test.

MAXIMUM PC KICK ASS PRODUCT

The Falcon Mach V is also the fastest production PC we've ever tested in basic office productivity and content creation apps. In *SYSmark2001,* which tests how fast a PC can crank through 14 Windows programs, the Falcon hit an amazing 190 (the 2GHz Dell hit just 181). But 190 syssy points is what you get from an Athlon XP, Windows XP, 512MB of DDR PC2100 memory, and IDE RAID (care of two IBM 60GXPs and an add-in Promise Controller). Thanks to the brand-spanking-new Plextor 24x burner, the Mach V ripped MP3s in record time, and at one point extracted songs at 40x. In fact, there's almost no room for improvement in the audio department. The Mach V offers the Sound Blaster Audigy in gamer trim and Klipsch's new 5.1 speakers. It's a combination that no other consumer-level combo can beat.

In a desperate search for something, anything, wrong with this system, we found fault with the dual 60GXP hard-drive combo. Don't get us wrong; the drives are fast—Gear of the Year fast—and run even faster when striped in a RAID 0 array. But in a perfect world, the system would have included ATA133 drives and a larger storage capacity. The Mach V holds 82GB, but the Dell machine features a single 100GB Western Digital drive. Besides that, there's nothing to bitch about. The Falcon roars through benchmarks and offers hardware most power users can only dream of.

—GORDON MAH UNG

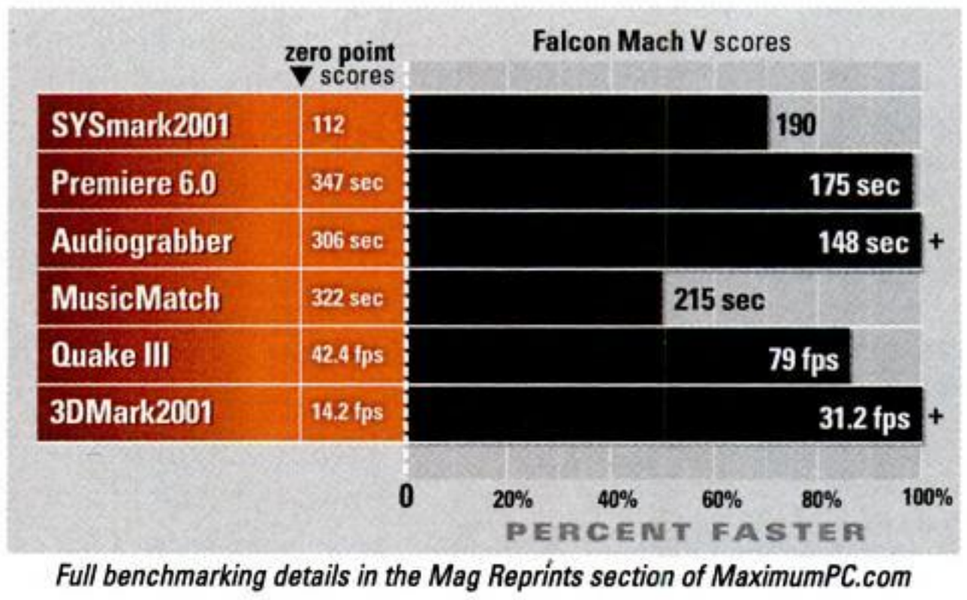
MAXIMUMPC VERDICT

Mach V
FALCON NORTHWEST

WHAT WE LIKE
The Mach V packs more PC firepower than most third-world nations.

WHAT WE HATE
This beauty's only blemish is its need for more hard-drive capacity and front-mounted USB ports.

888.325.2661 www.falcon-nw.com
$3,845 w/o monitor
10



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Make Money In A Computer Career!

Get The Training You Need In As Little As Six Months!

Important Facts About a Career in Computers:

- Over 400,000 jobs are expected to open in the computer field by the year 2008.*
- Computer careers are among the highest-paying in the nation, with experienced programmers earning as much as $70,000 a year and more.**
- Harcourt Learning Direct can prepare you for an exciting career in computers in as little as six months!

Train at home in your spare time for a career with a future! Learn at your own pace, without rearranging your schedule. And you need no previous experience — just ambition and the desire to succeed.

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* Growth figures represent a ten-year period ending 2008. Source: National Industry-Occupation Employment Matrix, a publication of The U.S. Bureau of Labor Statistics.

** All salary information is based on the *Occupational Outlook Handbook*, a publication of the U.S. Department of Labor. Individual student earnings vary.

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Two for the Road!

TDK's FireWire veloCD vs. Iogear's USB 2.0 Impulse

Now that USB 2.0 is a serious alternative to FireWire as an interface for heavy-duty peripherals, it's time for a showdown. So we pitted TDK's FireWire veloCD against Iogear's USB 2.0 Impulse, two similarly appointed 16x drives that live *outside* of your PC's case. They're both great drives, but we found that the veloCD edged out the Impulse in more than just case design.

At a little more than three and five pounds, respectively, for the veloCD and Impulse, these drives aren't carried—they're lugged around. But the sturdy casing and shock-protection of both units provide sufficient protection for the occasional journey to your school, convent, or wherever you happen to be going. Both drives sport a 2MB buffer, Burn Proof buffer-underrun protection, 16/10/40 write speeds, and support for the usual roundup of CD formats, including Video CD and mixed-mode CDs that contain both data and CD Audio tracks. The benchmarks reveal how the drives differ.

Iogear's Impulse: Someday we'd like to see the eject button on top of the unit, not under the tray where you can get nailed if you're too slow.

THE BUNDLE-VELOCD

Nero Burning ROM, InCD, MusicMatch Jukebox, Adobe *ActiveShare, TDK Digital MixMaster*

THE BUNDLE-IMPULSE

Nero Burning ROM, InCD

DARE TO COMPARE

	TDK's veloCD	Iogear's Impulse
Average data read (MB/sec)	4.64	4.55
Average drive rating	31.73x	31.08x
Random/full-stroke seek (ms)	135/254	118/254
Audio extraction (min:sec)	3:06	2:39
Data CD burn (min:sec)	5:23	5:23
CPU utilization (at 8x)	11%	13%

Note: The audio-extraction test uses a commercially stamped 75:27 minute audio CD. The data-CD burn test uses the bundled applications to create a 647MB CD-R. Beginning this month, access times will be measured across the full span of a 700MB disc. This will result in slower access times than seen in previous reviews. For more information on how we benchmark optical drives, look at the Mag Reprints section of MaximumPC.com.

TDK's veloCD: How many peripherals can be described as simultaneously looking like a shark, a tissue dispenser, and a trilobite?

TDK'S VELOCD 16/10/40

The veloCD's average transfer rate topped out at nearly 32x, a notch above the Impulse's 31x speed. Full-stroke access times were identical to those of the Impulse, but random-access time lagged slightly behind at 135ms. The veloCD, however, *stomped* the Impulse at reading data from CD-RW, with a 25x rate versus the Impulse's embarrassing 15x. We were impressed with the veloCD's fast and accurate DAE (digital audio extraction), ripping 75:27 minutes of music from a commercially stamped CD in 3:06. Little did we know that the Impulse would later crush the veloCD in the same test.

The asymmetric veloCD is about two pounds lighter than the Impulse and sports a racing stripe that flashes when the drive mechanism is operating. The faceplate has a deep groove that protects the headphone jack and volume control while leaving just enough of the eject button exposed to depress without effort. The veloCD is also quieter than the Impulse, and the eject mechanism worked without any jerkiness at all.

IOGEAR'S IMPULSE 16/10/40

At 13x10x6-inches, the Impulse is no dainty drive. But the electrical transformer is inside the case, so at least there's no brick to deal with (unlike the veloCD). Other conveniences include rubber feet for standing the drive on its side, and RCA jacks on the back for output to your stereo system. You don't have any USB 2.0 ports? No problem. The Impulse comes with a PCI USB 2.0 card as well.

The Impulse held its own against the veloCD in most of the benchmarks, matching write-to-CD-R speed exactly and lagging behind in CD-RW by just eight seconds. The Impulse took quite a beating on the CD-RW transfer-rate benchmarks, but pulled its own coup in the DAE test, ripping our 75:27 minute test CD in 2:39. That's just three seconds shy of the record set by the TDK 24x internal drive!

Despite this and the convenience of backwards compatibility with USB 1.1, the Impulse's poor CD-RW transfer rate and steep price make it a bronze medalist.

—LOGAN DECKER

MAXIMUMPC VERDICT

VELOCD 16/10/40 FIREWIRE EXTERNAL
TDK

WHAT WE LIKE

TDK put the solid performance of its internal 16x drive in a sleek case that's sure to promote stimulating conversation.

WHAT WE HATE

It's literally not up to speed with the latest drives, and the FireWire connection may leave your external with fewer places to go.

516.535.2600 www.velocd.tdk.com
$330
8

MAXIMUMPC VERDICT

IMPULSE 16/10/40
IOGEAR

WHAT WE LIKE

The Impulse is no slouch with near record-breaking DAE, an internal power transformer, and backwards compatibility with USB 1.1.

WHAT WE HATE

We can deal with the sober, utilitarian gray box, but the slow CD-RW transfer rates and high price are harder to accept.

888.999.2836 www.iogear.com
$400
7

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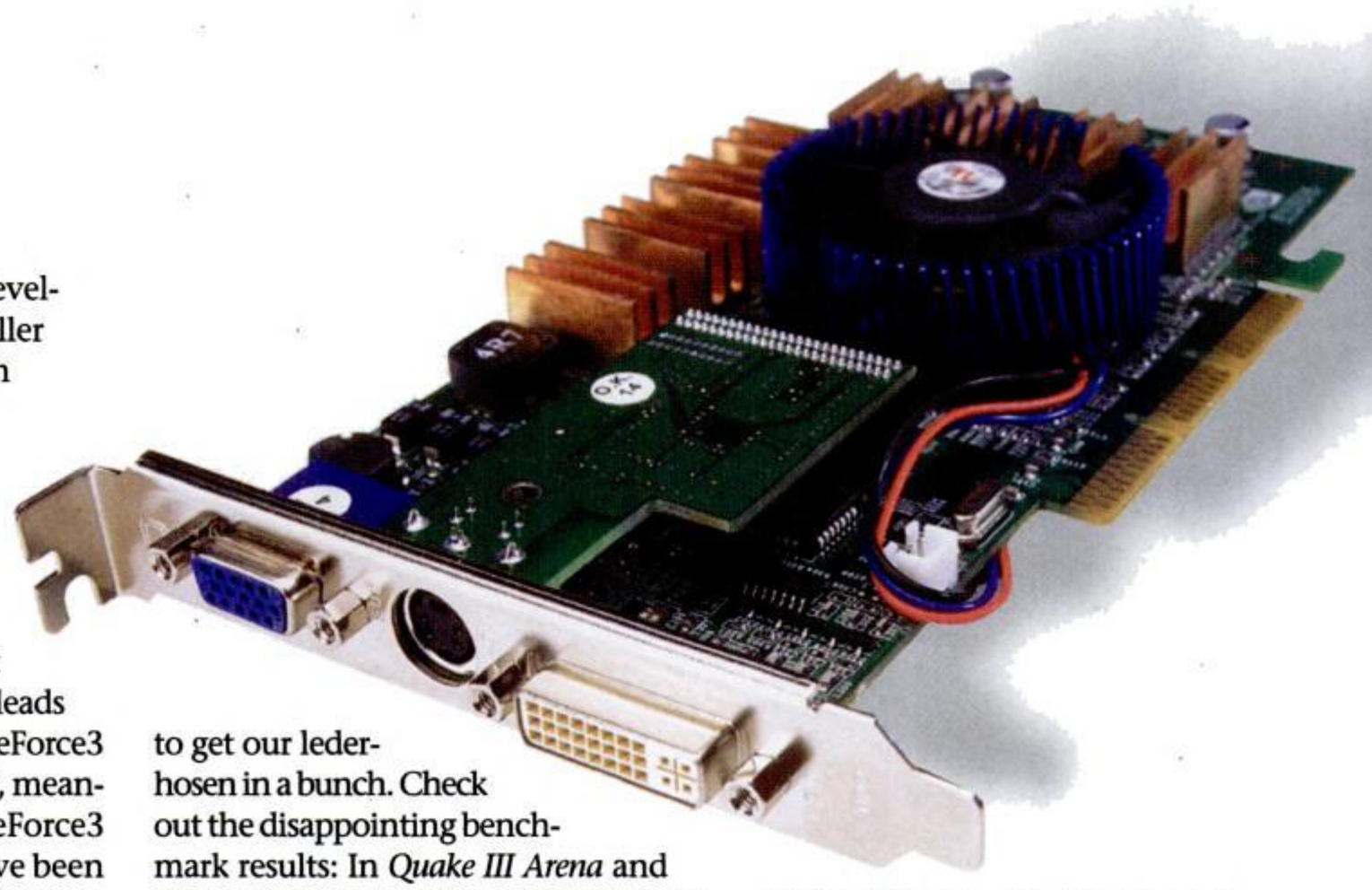
3D Three-Way

Three videocards, three different stories

The number of companies developing graphics chips is smaller than ever, but consolidation in the chip space hasn't led to fewer videocard choices on store shelves. There's still a veritable cornucopia of different videocards for every need and every budget.

Want proof? We've got it right here. The Visiontek Xtacy 6964 leads the pack with nVidia's "new" GeForce3 Ti 500 chipset. The OCZ Titan 3, meanwhile, employs the original GeForce3 core, but its internal clocks have been notched up a few ticks for what amounts to a free frame rate boost. Finally, the ATI Radeon 7500 brings up the rear with a story of thrift.



Unlike other shipping models, the Blue Orb on our Titan 3 board is powered by the PC's power supply rather than the fan header mounted on the videocard.

VISIONTEK XTACY 6964

The Xtacy 6964 uses nVidia's new GeForce3 Ti 500 chipset, which is really just the original GeForce3 chipset with a slight clock-speed bump and a saucy new moniker. Core clock speed has been increased from 200MHz to 240MHz, while DDR memory has jumped from 230MHz to 250MHz. Toss in nVidia's new Detonator XP drivers, and you've got yourself a GeForce3 chip that can belch out a few more frames per second.

The Xtacy 6964 includes all the necessary input/output options and is the fastest card available, but it doesn't offer the performance bump we expected.

Unfortunately, because today's games are still memory bandwidth–limited—a situation that won't change until developers begin using programmable shaders—only the Ti 500's memory clock increase is really noteworthy, and at a measly 8 percent, it's still not significant enough to get our lederhosen in a bunch. Check out the disappointing benchmark results: In *Quake III Arena* and *3DMark2001* Game 2, the Xtacy 6964's scores scaled with its memory speed boost exactly, beating the GeForce3 core from whence it came with a paltry 8 percent frame rate increase. Moral of the story? If your machine is already equipped with a GeForce3, don't bother with a Ti 500–based card—it won't significantly improve your quality of life. However, if you're still dancing the frame rate cha-cha with a GeForce2-class board, leapfrog over the original GeForce3 and get yourself a Ti 500. The extra speed doesn't come at an extravagant price premium.

The Xtacy 6964 was 23 percent slower than the competing Radeon 8500 in the *3DMark2001* Game 2 DirectX 7 demo. However, the 8500 is suspiciously fast in Game 2, so we ascribe limited significance to the its victory (after all, the 8500 isn't nearly so dominating in the other *3DMark2001* tests). The Xtacy 6964 did account for itself relatively well in the OpenGL *Quake III Arena* demo, where it beat the Radeon 8500 by 2.3fps. Yep, you guessed it: ATI's OpenGL drivers need optimizing—a portion of chipset development we think is best completed *before* a videocard is released.

But enough about ATI; we'll beat it up in due time. This is the story of the new GeForce3 Ti 500, and a banal story it is. The Ti 500—in the form of the Xtacy 6964—is but an incremental upgrade to a revolutionary part. If you already own the revolutionary GeForce3, you'd do best to wait until 2002, which is when nVidia is expected to release its true successor to the frame rate throne.

OCZ TITAN 3

The OCZ Titan 3 uses the original GeForce3 chip, but its core clock has been ratcheted to 215MHz, while memory has been boosted to 257.5MHz. The card's

DARE TO COMPARE — XTACY 6964 VS. TITAN 3 VS. RADEON 7500 VS. RADEON 8500

	Xtacy 6964	Titan 3	Radeon 7500	Radeon 8500
WINDOWS ME				
Quake3 MPC Demo	63.3fps	68.0fps	41.8fps	61.0fps
3DMark 2001 Game 2 - High	47.1fps	46.1fps	32.8fps	60.2fps
3DMark 2001 Game 4	25.6fps	24.7fps	Not Supported	18.2fps
WINDOWS XP				
Quake3 MPC Demo	69.8fps	68.9fps	59.6fps	66.0fps
3DMark 2001 Game 2 - High	48.9fps	46.8fps	32.6fps	59.3fps
3DMark 2001 Game 4	26.1fps	25.4fps	Not Supported	18.3fps

All benchmarks were run on our HP Pentium 4 test systems. Numbers reflect frames per second. The Xtacy 6964 used the 21.85 nVidia driver; the Titan 3 used the 21.81 nVidia driver; the Radeon 7500 used the shipping driver; and the Radeon 8500 used the 4.13.7816 WinME driver and the 7.60.04 WinXP driver.

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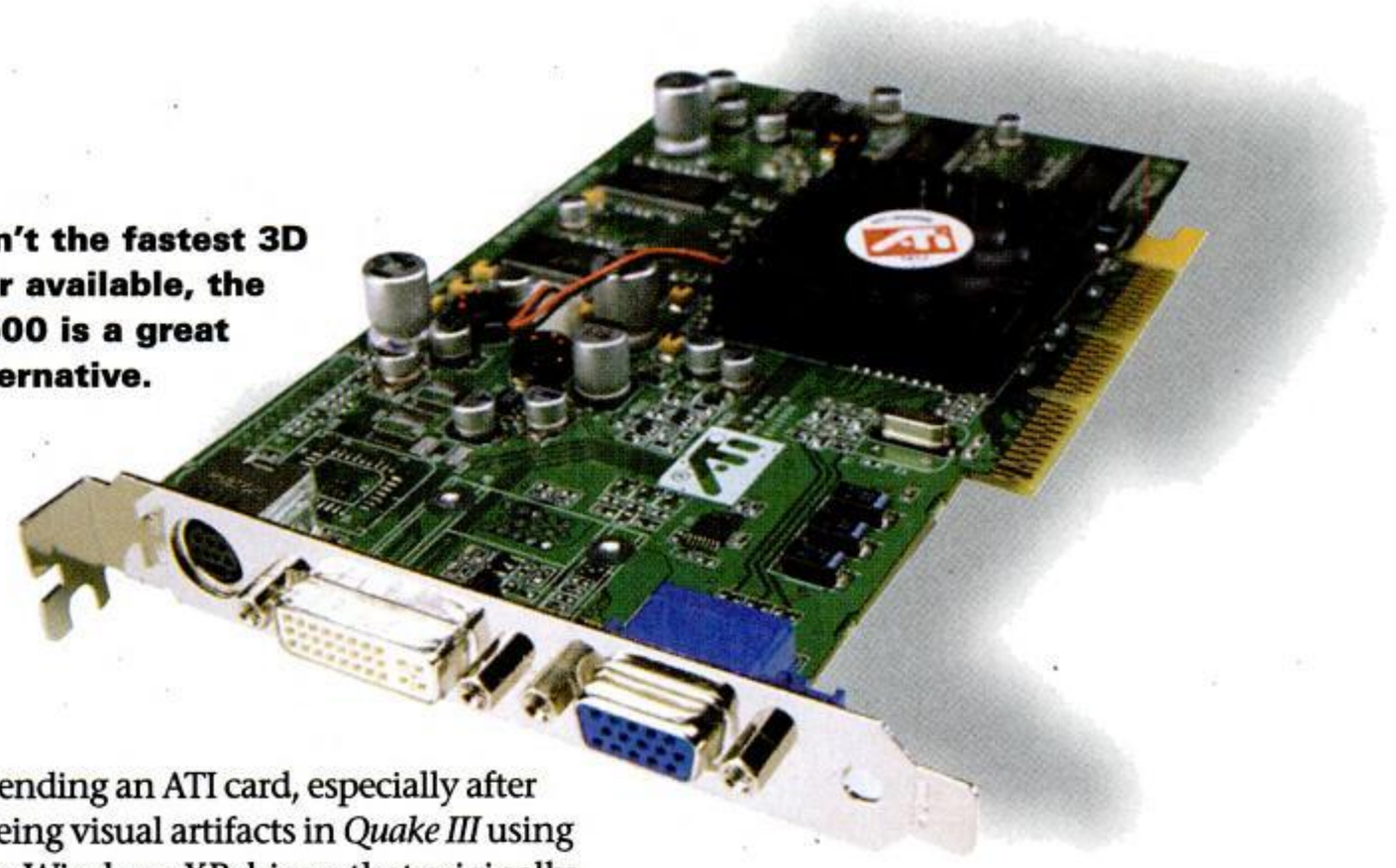


While it isn't the fastest 3D accelerator available, the Radeon 7500 is a great budget alternative.

bodywork is more interesting than its tuning, however: Massive copper heatsinks adorn each individual memory chip, while a Blue Orb heatsink/fan cools the overclocked core. We were initially concerned about stability, but the Titan 3's over-the-top cooling seems to be more than sufficient for chilling the board at its default speeds and beyond. Using the bundled overclocking utility, we were able to bump the Titan 3's memory up to 260MHz without problems.

The Titan 3 may be an original GeForce3 board, but it performs like a Ti 500. In fact, in our three standard benchmarks, the Titan 3 trailed the Xtacy 6964 by no more than 2.1fps during Windows XP testing. We're impressed with the cooling headroom built into the Titan 3, and we can't wait to see an OCZ board based on the GeForce3 Ti 500 chipset.

ATI RADEON 7500

Unlike the Radeon 8500—which we reviewed in November and is based on ATI's new, fully programmable R200 chipset—the 7500 uses the same R100 chip that powers the original Radeon. Core speed has been upped from 183MHz to 290MHz, while DDR memory jumps from 183MHz to 230MHz. These speed bumps should allow the Radeon 7500 to keep up with the more powerful Radeon 8500 and GeForce3-based boards in benchmarks that *don't* use programmable shaders. Of course, the 7500 can't even render the advanced visual effects used in programmable-shader games.

Surprisingly, the Radeon 7500 is much slower than both nVidia-based boards in this roundup, despite its peppy core and memory clock speeds. Nonetheless, for $200, the 7500 delivers great performance at a good price. It's definitely not a top-of-the-line part, but it will allow you to play most games at 1024x768 with detail cranked up in 32-bit color. We're a little nervous about recommending an ATI card, especially after seeing visual artifacts in *Quake III* using the Windows XP drivers that originally shipped with this board (a driver rev did fix the glitches, however). Still, if no more driver issues pop up, the Radeon 7500 has its merits as a 'tweener card for cautious upgraders.

THE UPSHOT

If you already own a GeForce3 board, don't even think about upgrading to one of these three boards—you've already got enough horsepower to play DirectX 7 games, and we have yet to see even a *single* DirectX 8, programmable-shader game on store shelves. If you're already getting busy with a GeForce2, original Radeon, or something older, a GeForce3 Ti 500–based board or a Radeon 8500 would be a compelling upgrade, *if* you've got deep pockets. After a one month turn in the top spot, the Radeon 8500 has been ousted as the speed king by the Xtacy 6964. While the GeForce3 Ti 500 is a relatively minor performance upgrade to the original GeForce3, it is enough to retake the speed crown. The Radeon 7500 is a good card for $200, especially if you aren't concerned about programmable shaders. But if you want the latest and greatest, don't go knockin' on the 7500's door.

If overclocking's your thing, there's only one choice: The OCZ Titan 3 spanks the monkey's ass when it comes to out-of-the-box overclockability. It comes with an overclocking utility and boasts enough heatsinkage to dissipate the afterburn of a small supernova. Most importantly, it comes with a warranty one can only assume will be honored in the event of a meltdown.

But then again, when have overclockers ever worried about meltdowns?

—WILL SMITH

MAXIMUMPC VERDICT

Xtacy 6964
VISIONTEK

WHAT WE LIKE
It's the new speed king, it's based on the industry-standard chipset, and it has pretty blue heatsinks.

WHAT WE HATE
There's not much perceivable difference between this "Titanium" version and the original GeForce3.

800.726.9695 www.visiontek.com
$350
10

MAXIMUMPC VERDICT

Titan 3
OCZTECH

WHAT WE LIKE
Balls-to-the-wall cooling lets you push this original GeForce3 beyond Titanium territory.

WHAT WE HATE
OCZ's vague warranty makes us a bit nervous. Also, the Orb cooler can block the first PCI slot on some mobos.

www.ocztech.com
$340
9

MAXIMUMPC VERDICT

Radeon 7500
ATI

WHAT WE LIKE
Awesome performance for the price. It's nice to have multiple monitor support on a fast card.

WHAT WE HATE
Lack of DirectX 8 support gives it a limited life span.

905.882.2600 www.ati.com
$200
8

4.1 Megapixel Showdown

High-res images are boffo, but only if your camera can hold them en masse

Sony DSC-S85: Disappearing act: Forget about using filters or adapters. The lens threads are hidden when the camera is on.

After stalling at the 3-megapixel mark, digital camera veterans Sony and Olympus have broken through to the next resolution plateau. Boasting 4.1-megapixel output, both the Sony DSC-S85 and Olympus C-4040 should've been contenders, but a host of flaws keep them on the ropes.

For starters, only the camera's CCDs are 4.1 megapixels; the final images top out at 2272x1704, which is about 3.9 megapixels and just below the magic line of demarcation. It turns out that the pixels on the edges of many images are subject to visual noise, so the cameras simply trim away edge pixels as a matter of rote, resulting in a smaller resolution. Now, make no mistake: The top resolutions these cameras do deliver are certainly impressive. Portraits produce eyelash-level detail. But just as there's more to PCs than megahertz, there's more to digital cameras than high-res specs.

SONY DSC-S85

While a bit boxy, Sony's DSC-S85 is comfortable to hold and boasts intuitive controls, including a small, power-saving, monochrome LCD for range-finder shooting. An excellent bracketing feature automatically snaps three shots with user-defined exposure variations, and gimmicky special effects—such as sepia, black and white, negative, and solarization—are also available in-camera. Image previews on the built-in, 1.8-inch LCD can be zoomed in on and scrolled about. A Trim feature (which isn't available with the Olympus) allows you to crop in-camera, although the interpolation intrinsic to the process can create crappy images. An MPEG mode allows you to capture brief, 320x240 movies, complete with audio.

Unfortunately, small design flaws mar the package. First, the cap for the AC adapter is tenuously attached with a sliver of plastic, guaranteed to break within the first year of use. Second, the unit is equipped with merely a lens cap and dangling leash, not a built-in lens shield, which is an emerging industry standard. And get this: The threaded lens mount is actually part of the camera body assembly, and whenever you turn the camera on, the lens protrudes beyond the threads, rendering the threads useless for filters or adapters! Absolutely senseless. Finally, the flash hotshoe situated on top of the camera is actually just an "accessory adapter." No external flash sync here, folks.

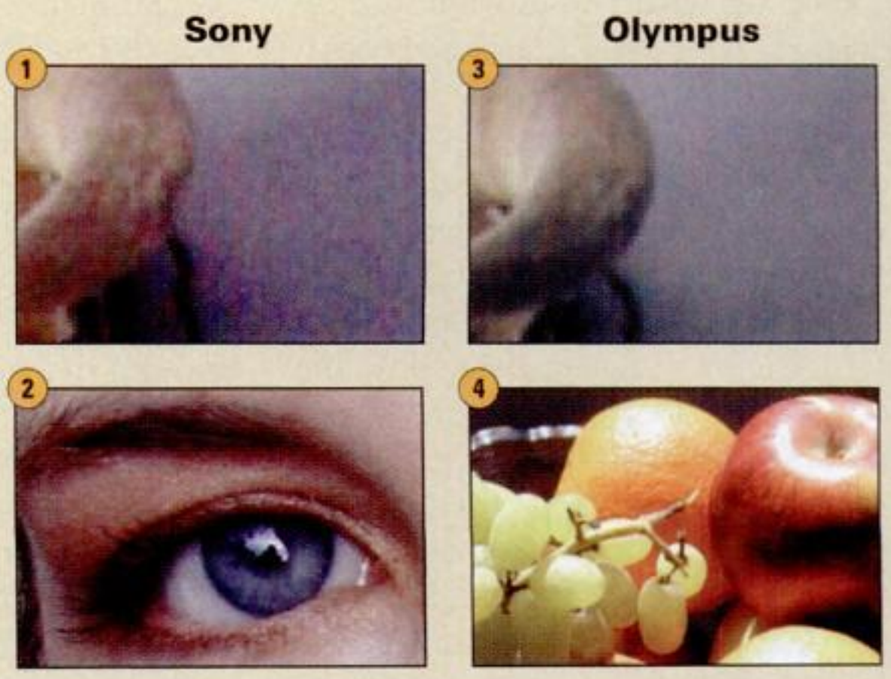
The DSC-S85's high-resolution capability is all fine and dandy—until you realize that Sony's removable memory choice might ultimately prevent you from ever using the best image quality settings. While Sony's proprietary Memory Stick is standard among Sony products, the rest of the world marches to a different beat. Makers of modern digital cameras have largely settled on the CompactFlash standard, with a few (such as Olympus) still opting for obsolete SmartMedia.

The Memory Stick format is fraught with drawbacks. For starters, the largest available capacity is 128MB, and even that size can be hard to come by. CompactFlash, meanwhile, comes in sizes up to 512MB. What's more, Sony sells its 128MB Stick for $150, which is $10 more than 256MB of name-brand CF. And to cap it off, the DSC-S85 ships with a paltry 16MB Stick. Using the camera's highest resolution setting, you'd be able to take just a single uncompressed TIFF image with the stock memory allotment. (It must be noted, however, that an 11MB TIFF can be nearly pixel-for-pixel identical to a 1MB JPEG.) When using the camera's 2272x1704 "fine"

IMAGE QUALITY

Along with the color shifts that all auto-white-balancing digital cameras invariably produce in variable light, the DSC-S85 can conjure up dramatic color mottling in some pictures' low-light neutral tones. Here you see a profound example in this close-up of shadowing behind a cow skull (image 1). And unlike basic color shifts, which are easily corrected in even the most rudimentary image-editing application, you're stuck with these mottling blights, which are particularly obnoxious when printed out. Nonetheless, despite these shortcomings, the Sony DSC-S85 delivers serious megapixels, reproducing details down to the finest resolution (image 2). Notice how every eyelash is clearly visible in this JPEG portrait excerpt (the original image was 2272x1704, 2.2MB).

The Olympus C-4040 reproduced shadow areas much more accurately; notice the decreased color mottling in the shadowing behind the cow skull (image 3). What's more, direct window lighting can be a challenge for any digital camera, but this excerpt from a fruit bowl still life shows that the Olympus's 4.1 megapixels of resolution are up to the challenge (image 4).



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JPEG mode, a 16MB Stick holds just seven or eight images. Gah!

The DSC-S85's best feature is its battery, a camcorder-style rechargeable lithium cell rated for up to 3,000 shots. In fact, a single charge lasted an entire week of testing. A smart chip in the battery estimates how many minutes of shooting you have left on the current charge. Of course, the problem with proprietary batteries is that replacements can't be easily obtained when your battery dies in the field, but simply investing in a second $60 battery should cover you.

There's a lot to like about the DSC-S85, but when the best feature of a breakthrough camera is its battery, buyer beware.

The Olympus C-4040's features are capable of photographic feats, but the 16MB of included SmartMemory may hold you back.

OLYMPUS C-4040

The C-4040's body is nearly identical to Sony's DSC-S85, with the biggest difference being the C-4040's superior positioning of the zoom controls near the shutter trigger (Sony places its zoom control on the back of the camera). Olympus also includes a monochrome LCD for settings, but it's more robust than Sony's. An automatic exposure bracketing option is present, as are the gimmicky sepia-tone and black-and-white special effects. The C-4040 also includes an image preview zoom feature, but leaves out the dubious trimming capabilities. Instead of MPEG movies, the C-4040 captures 320x240 QuickTime clips at up to 15fps, complete with audio. But unlike the Sony camera, the C-4040's zoom does work with the movie feature.

Both cameras have a 3x optical zoom, but the Olympus's 7.5x digital zoom trumps the Sony's 6x. Regardless, both cameras' digital zoom should be avoided, unless you somehow get your jollies from ugly image interpolation. While Olympus's digital zoom boasts a bicubic interpolation algorithm (this is the algorithm used in Adobe *Photoshop*), the results are visibly inferior to optical zoom.

The C-4040 can also interpolate image sizes from 2272x1704 to 3200x2400 using onboard interpolation at the time of image capture. Image interpolation always looks better when executed by powerful image-editing apps running on PCs, but Olympus does deserve credit for resisting the urge to market the C-4040 as a "7.6-megapixel" camera.

The C-4040, like the Sony, comes with a tethered lens cap, but forgoes the Sony's senseless threaded mount. Ultimately, one of these designs should include a threaded mount and ship with a UV filter to protect the delicate glass optics. While there's no hotshoe on the C-4040, an external flash socket is provided. Unfortunately, it's proprietary and works only with Olympus's FL-40 flash head.

The C-4040 doesn't rely on Memory Stick removable memory, but its marriage to SmartMedia isn't much of an improvement. Like Memory Stick, SmartMedia currently tops out at 128MB and costs more per megabyte than CompactFlash. Olympus included CF support in its C-2500L model, but has since abandoned it in newer models. That's a mistake. Like Sony, Olympus includes just 16MB of removable memory, which dramatically discourages anyone from shooting pics at the highest resolution settings. Again, only one uncompressed TIFF image can be recorded to the bundled card. If you do buy the C-4040, you should simultaneously invest in a 128MB SmartMedia card, driving the $1,100 price tag closer to $1,200.

Olympus opted for a proprietary, non-rechargeable lithium battery. These batteries are rated for some 300 images, but your time will vary depending on how often you use the camera's LCD viewfinder. Replacements from a camera specialty shop will run you about $30 to $40 for the two batteries required. Suffice it to say, Olympus's battery solution is as bad as Sony's solution is good.

When all is said and done, both cameras desperately need CF support and have too many flaws to warrant a *Maximum PC* recommendation. Who knows, maybe the upcoming Canon PowerShot will bring us 4.1-megapixel satisfaction.

—BRAD DOSLAND

THE SPECS

	Sony	Olympus
Lens	f/2.0-2.5 Carl Zeiss 3x optical zoom (34mm-102mm, 35mm equivalent); 6x digital zoom	f/1.8-2.6 3x optical zoom (35mm-105mm, 35mm equivalent); 7.5x digital zoom
Storage	Memory Stick (16MB included)	SmartMedia (16MB included)
Interface	USB (cable included)	USB (cable included)
Image support	Uncompressed TIFF, JPEG, MPEG, GIF	Uncompressed TIFF, JPEG, QuickTime, DPOF

MAXIMUMPC VERDICT

DSC-S85
SONY

+ WHAT WE LIKE
Lots of great bells and whistles, such as bracketing features, MPEG movie capture, and smart batteries.

– WHAT WE HATE
Despite high resolution, image quality suffers, and many features are poorly implemented.

888.222.SONY www.sony.com/di
$800
6

MAXIMUMPC VERDICT

C-4040
OLYMPUS

+ WHAT WE LIKE
Some of the details are slightly better executed than those of the Sony competition, but...

– WHAT WE HATE
...a bad battery and silly memory support prevent us from recommending any camera that costs more than $1,000.

631.844.5000 www.olympus.com
$1,100
6

Megaworks 210D

Cambridge hits a home run with this 2.1 speaker rig

Its high price is all that precludes Cambridge's Megaworks from entering the land o' Kick Ass.

Ever since Cambridge Soundworks was gobbled up by Creative Labs, the once-revered home audio company has released dog-nasty computer speaker systems. In fact, the last worthy PC speaker rig from Cambridge was the Microworks Amplified Speaker System, which hit the Maximum PC Lab before the Creative buyout some 200 or 300 years ago.

So you can imagine our surprise when we discovered that Cambridge's latest effort—the Megaworks 210D—breaks from recent tradition and harks back to the distinguished Cambridge of old. We even did side-by-side testing with the Microworks and were *very* impressed. The Megaworks' two 3.5-inch, single-transducer satellites perfectly reproduced the pings, plinks, and whizzes of all the games we tested. The downward-firing, 8-inch powered subwoofer cranked out thumping bass. And we were especially impressed by the smoothness of the crossover. In fact, the only way we could detect the crossover was to put our hands on the subwoofer to feel when it dropped off.

The Megaworks accepts two analog and one coaxial digital input, and includes appropriate cables to use either input when paired with a soundcard with a S/PDIF. Cambridge also continues the Microworks' tradition by including a simple remote volume knob that can be mounted beneath either speaker or Velcro'd to a spot on your desk or monitor. The sub features independent controls for treble and bass, as well as spring-clip wire connectors for each of the satellite speakers (which allow you to upgrade the standard speaker wire Cambridge provides).

The three-piece set creates a relatively small, focused sound field, perfect for gaming at your computer desk, but lively enough to draw complaints from people in the next room. A *Quake III* rocket jump actually made the floor under our feet vibrate. We're not sure about Cambridge's 270-watt power rating, but these speakers definitely have what it takes in the volume department. The only flaws on an otherwise perfect speaker rig are a subtle belching noise the subwoofer produces and the surprisingly high price for a 2.1 rig.

WHAT WE LIKE: These speakers sound almost good enough to atone for Cambridge's recent sins.

WHAT WE HATE: We're chagrined by the inconsistency in the bass output, and it costs more than most 4.1 rigs.

—WILL SMITH

MAXIMUM PC VERDICT: 8

$300, Cambridge Soundworks, www.cambridgesoundworks.com, 800.367.4434

Philips MMS305

Flat speakers that don't suck?

Small size doesn't get in the way of the MMS305's great sound reproduction, but we're a little disappointed in the speakers' maximum volume.

When we got our first taste of flat-panel speakers at Comdex several years ago, we were impressed by their size and high-tech aesthetic but underwhelmed by their sound. Ditto for all the flat-panel speakers we've ever tested in the Lab. Tinny sound quality… a complete inability to reproduce certain sound frequencies… inordinately narrow sound fields. Yep, that pretty much summed up even the best flat-panel speakers.

Enter a new age of flat-panel goodness. The MMS305 rig from Philips exhibits none of the flaws mentioned above and easily sounds as good as traditional 4.1 speaker sets in the same price range. It also just plain stunned us with its representations of our favorite tunes. Its sound field is wide-wide-wide, and during playback of games, the 3D positioning of sounds within the listening area was fantastic. Sound reproduction during our 20Hz-to-22KHz sweep was crisp, with a seamless crossover when the subwoofer kicked in and out.

The MMS305's fatal flaw is low volume. Like many flat-panel speakers, the satellites just don't get very loud. Also, while the bass was impressive considering the size of the subwoofer, it wasn't as impressive as what we've heard from most other 4.1 sets.

The MMS305's most distinguishing feature is a nifty remote control. Any of the three available inputs are easily selected using the remote, and you can adjust bass and treble with just a few button presses. The only downside to the remote is that there's no easy way to see if the speakers are at a whisper-quiet "1" setting or a *Spinal Tap* "11" setting.

If you want a set of 4.1 speakers but don't have much space, the MMS305 is the ticket—the satellites' rich sound contradicts their tiny stature. But if you want earth-shaking bass at high volumes, you'd better look elsewhere.

WHAT WE LIKE: Great sound for a flat-panel set. Crisp, clear reproduction through the entire audio spectrum.

WHAT WE HATE: They just don't get that loud. There's no volume indicator whatsoever.

—WILL SMITH

MAXIMUM PC VERDICT: 7

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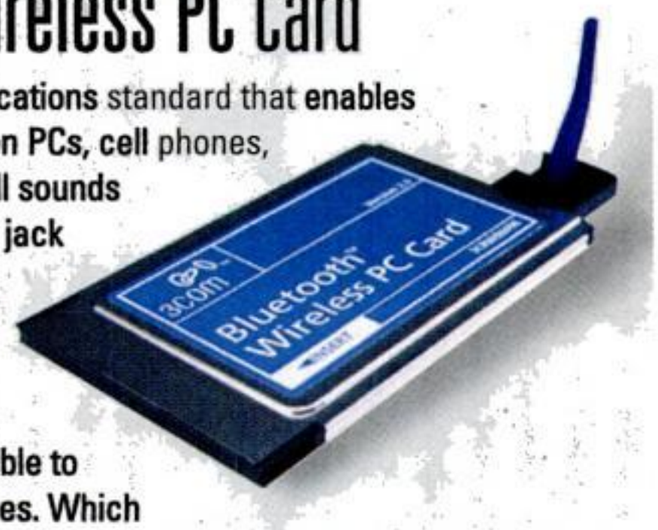


Bluetooth is a wireless communications standard that **enables seamless data exchange between PCs, cell** phones, **PDAs, and other peripherals. It all sounds good on paper, but doesn't mean jack until Bluetooth-enabled devices actually arrive. Enter the 3Com Bluetooth Wireless PC Card. Stick it into your notebook, and—boom!—you're suddenly able to connect to other Bluetooth devices. Which leads us right back to where we started: Until** you get **a Bluetooth cell phone, printer, or other peripheral, there's no reason** whatsoever **to buy a Bluetooth PC Card! At press** time, no Bluetooth-enabled peripherals were available, so **we simply stuck a** couple of the 3Com cards in different notebooks and test**ed connectivity.** A 44MB file took about 16.5 minutes to transfer from one **notebook** to the **other.** Words of wiz: If you want to wirelessly share **files** between two computers, get yourself a pair of Wi-Fi cards—they're faster.

WHAT WE LIKE: Worked without incident. Plus, the installation software **hints at coming** features, **including** support for **a** Bluetooth **phone and automatic sync with PDAs.**

WHAT WE HATE: Bluetooth products announced: 50 bazillion. Bluetooth products in our hands: one.

—WILL SMITH

MAXIMUM PC VERDICT: 8

$150 (each), 3Com, www.3com.com, 800.638.3266

Back-UPS CS 500VA

MAXIMUM PC KICK ASS PRODUCT

This device is essentially a power strip with a battery backup. Anytime there's a power surge, sag, or complete outage, the UPS (uninterruptible power supply) automatically switches to its internal battery, which will keep your PC from crashing and give you enough time to save your work and shut down properly. Coming correct with a 300W battery backup, the CS 500VA ran one of our Pentium 4 test systems and a 19-inch monitor for about six minutes when power was disconnected. The CS 500VA also includes APC's *PowerChute* software, which uses a USB connection to shut down or hibernate your PC if the power goes out while you're away. The CS 500VA includes three battery-powered outlets and three surge-protected outlets and will accommodate two large power bricks.

WHAT WE LIKE: We worked through a rare California thunderstorm without any problems whatsoever; meanwhile, neighboring PCs crashed due to power sags and surges. Great price, too.

WHAT WE HATE: We'd like a little more run time.

—WILL SMITH

MAXIMUM PC VERDICT: 9

$130, APC, www.apcc.com, 877.272.2722

KEYKatcher

A cold shiver ran down our spine when we realized how scary this device is. The KEYKatcher is a tiny PS/2 pass-through that silently records everything typed on your PC, regardless of OS or application. It doesn't require drivers and is virtually impossible to detect (someone would have to crawl behind his PC to find it). To review what's been recorded, simply type in a secret password, and the device eerily displays every keystroke that's been punched in. Three sizes are available, but we recommend the 64KB version, which is good for roughly 32 pages of text. The output does take a while to display, and the process can become tedious if you don't check it for a few days. The device's main limitation is that it stops when it runs out of memory, rather than simply writing over the oldest data.

WHAT WE LIKE: It's tiny, portable, takes a second to install, and leaves no footprints in the PC's hard drive or memory. Egad.

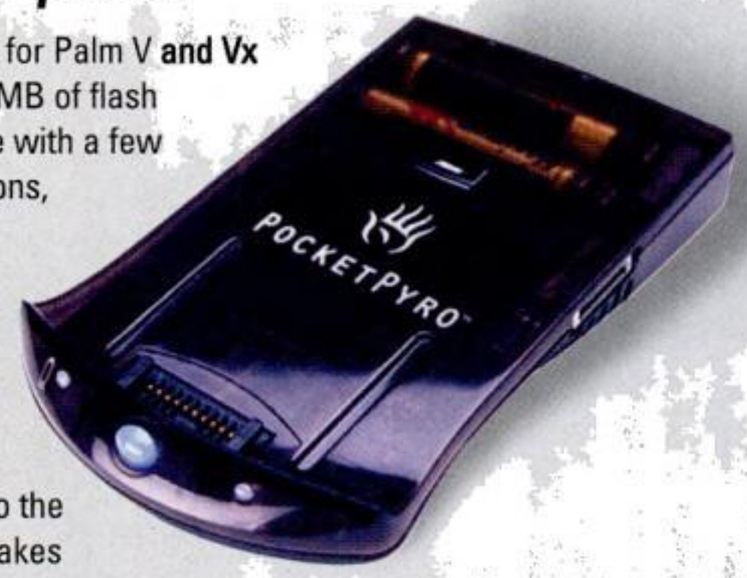
WHAT WE HATE: Doesn't provide an option to write over old data.

—GORDON MAH UNG

MAXIMUM PC VERDICT: 8

$100, Allen Concepts, www.keykatcher.com

Pocket Pyro's PyroPro



The PyroPro MP3 player for Palm V **and Vx devices is really just** 256MB of flash memory in a plastic case with a few accompanying applications, including a voice-recording app, a file manager, a utility to recharge your Palm with the Pyro's batteries, and of course, an **MP3** player. It snaps onto the back of your PDA and makes your life a living hell. Throughout virtual**ly every** step of installing the applications and **using the PyroPro, we received some** form of punishment along the lines **of error messages and Palm lockups.** Once **we got the** player working, we **were disappointed to find that the PyroPro can display only** two track names at **a time, and just the first 17 characters of each name.** Don't even think about touching **your Palm during uploads—doing so crashed** our PC.

WHAT WE LIKE: The PyroPro did not explode and set us on fire.

WHAT WE HATE: It's just 256MB of very, very expensive flash memory trying to be useful and failing miserably.

—LOGAN DECKER

MAXIMUM PC VERDICT: 3

$400, PocketPyro, www.pocketpyro.com, 954.359.9530

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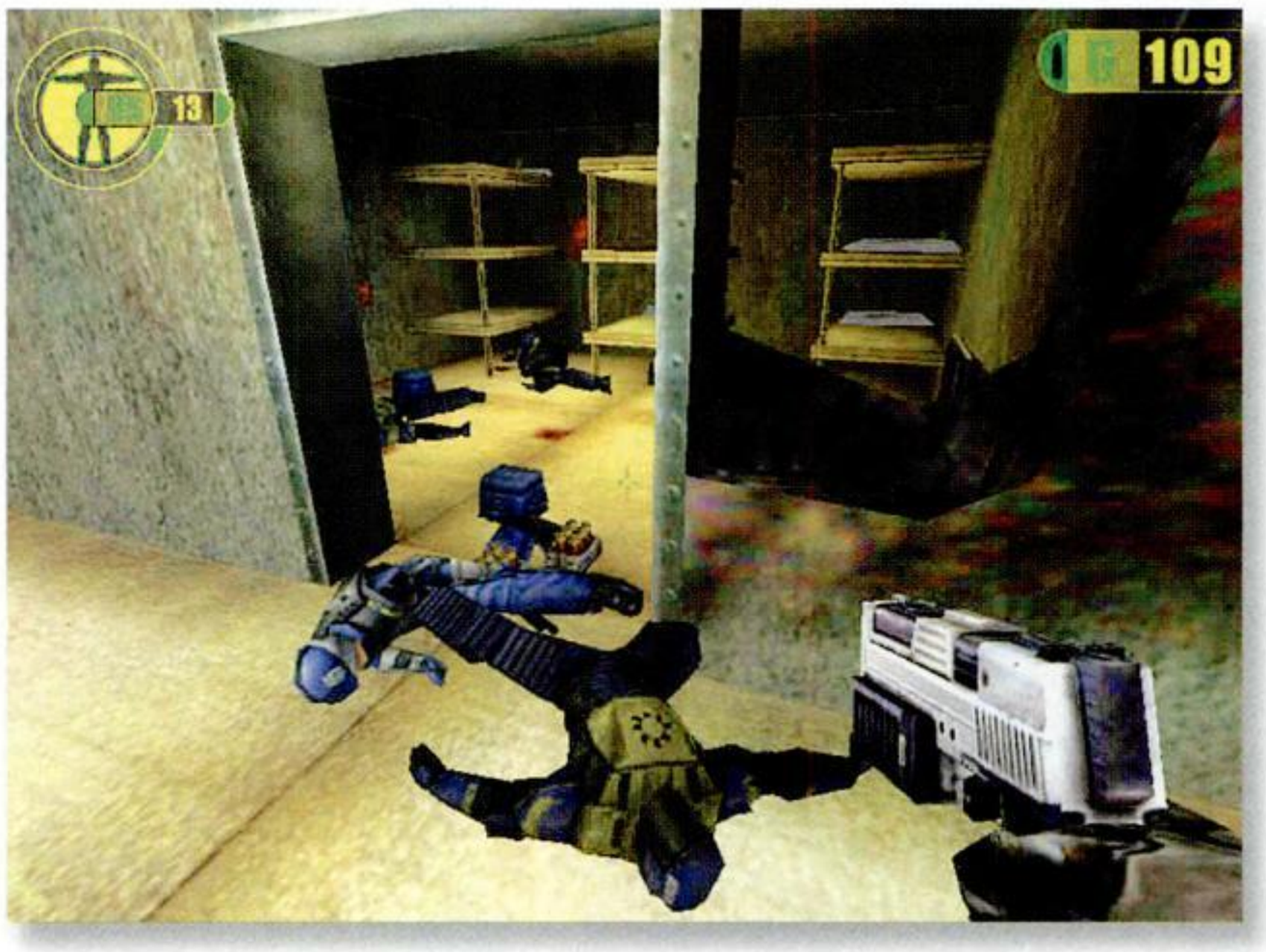
Red Faction

Blowing holes in stuff is fun! We sure wish we could do a lot more of it



Here you see the aftermath of a fixed turret attack. In a single, satisfying moment we took out chunks of wall and many, many guards.

Red Faction is a good first-person shooter, but it needed to be a great one. It's already considered the best FPS on the PlayStation 2, but it's also the *only* FPS for the PlayStation 2, so this is less of an achievement than one might think. The best console shooters are typically torn to shreds by PC gamers, who are used to state-of-the-art control, speed, design, and graphics. *Red Faction*, however, was clearly developed as a PC game by Volition, the talented team behind *Descent Freespace* and *Summoner*. It has none of the taint of a console-ported shooter, but it still faces stiff competition in the more demanding PC market.

Hanging your hat on a single gimmick is always risky, particularly if the gimmick doesn't pay off. In the case of *Red Faction*, it does pay off, just not as well as one would hope. The gimmick is what Volition has dubbed Geo-Mod technology, or Geometry Modification. The box describes this as the ability to "destroy and modify the environment in realtime." Since completely destructible environments have been a Holy Grail of shooters for some time, there is legitimate reason to be excited about the steps Volition has taken to realize the effect. Unfortunately, the developers simply didn't go far enough with it.

Weapon models and functions are quite good, but also overly familiar.

Gamers have long wanted to blast through walls and doors rather than search for key cards, and *Red Faction* provides this in small, sporadic doses. In fact, you can't blow through the environment willy nilly: Only carefully selected pieces are earmarked for destruction. To get you excited, the game gives you many opportunities to do this in the otherwise terminally bland opening cave levels. But, strangely, Volition didn't bother to introduce Geo-Mod in a clever or creative way. You don't *have* to blow through walls in most cases. It's just a little cooler to do so. And, more to the point, you can't blow through just any wall. In fact, you can't blow through most of the environment. Only on the multiplayer maps is Geo-Mod used with any regularity. More than 90 percent of the environment stays right where the level designer put it.

The gameplay in *Red Faction* thunders along like a perfectly fine—if familiar—action game, telling the story of a pseudo-Commie uprising on Mars. The engine looks good, but you've seen better. Level design is mixed, with a lot of decent levels, some boring stretches, and a few really impressive moments. The shadow of *Half-Life* falls heavily on *Red Faction*, and the gameplay winds up being a pale imitation. Though the foes have good AI and are all well-modeled and craftily animated, they're ultimately a bland assortment of guards, robots, and mutants. Weapons are from the "been there, done that" school of pistol, machine gun, rocket launcher, etc. They're nicely executed—except for the shotgun, which is just a hair too slow—but unoriginal.

In an effort to mix things up, an armored truck, a submarine, other vehicles, and turrets are included for short bursts. The turrets lay down some seriously impressive firepower while chewing up the walls, but the vehicles all control in the same faintly ponderous way. One almost-fatal flaw is the inclusion of a pair of "stealth" missions based solely on avoidance. These moments in the game are simply dull.

We know this all sounds negative—but it's mostly because *Red Faction* shows such unrealized potential. As a shooter, the game is an enjoyable (albeit, at 12 hours, short) experience. Multiplayer is quite excellent, and a level editor is included. But we've seen, and expect to see, better.

—THOMAS L. MCDONALD

MAXIMUMPC VERDICT

Red Faction
THQ

+ WHAT WE LIKE

The Geo-Mod technology works well—when it's available. Good multiplayer support.

– WHAT WE HATE

Geo-Mod is used too sparingly. Many of the levels bear a "sameness." Weapons are pretty much stock.

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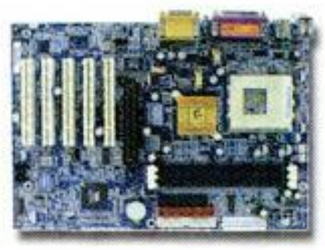

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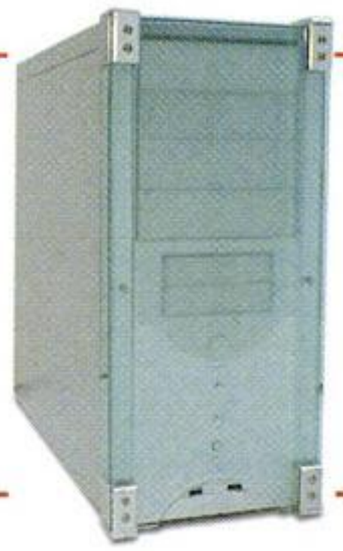

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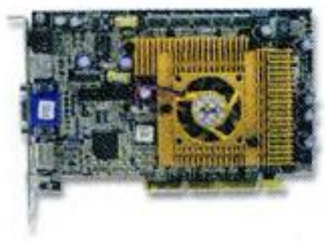

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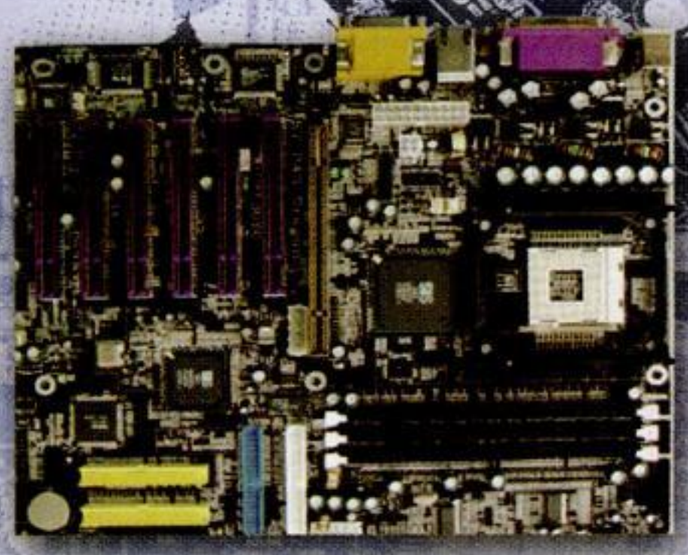

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- MS Windows XP Home or ME Edition CD
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AMD ATHLON XP 1500+	$ 719	(abbsp121)
AMD ATHLON XP 1600+	$ 729	(abbsp122)
AMD ATHLON XP 1700+	$ 749	(abbsp123)
AMD ATHLON XP 1800+	$ 799	(abbsp124)
AMD ATHLON XP 1900+	$ 839	(abbsp125)

DREAM 2001 — $1009

Jan, Feb & Mar 2001 **BEST BUY** Awards

- **VIA KT-133A UDMA-100 4x AGP MB**
- **1024 MB PC133 SDRAM**
- 60GB Ultra DMA-100 Hard Drive
- **24x10x40 CD-RW Drive**
- **16x DVD-ROM Drive**
- 64MB nVidia GeForce-2 MX400 4x AGP Video
- Sound Blaster Live! Value 5.1 Sound Card
  upgrade: Sound Blaster Audigy MP3+ @ $69
- **IEEE-1394 Fire Wire 3 Ports PCI Card**
- 56K V.90 Fax Modem w/Voice
- 19" Digital SVGA Monitor, .26mm
- PS2 Win98 Keyboard & Scrolling Internet Mouse
  upgrade: MS Optical Intelli-Mouse @ $27
- **7 Pieces 1000 Watt Surround Sound Speaker**
- MS Windows XP Home Edition CD
- **Free COREL Office 2002 CD**
- One Year On-Site Warranty - add $39

AMD ATHLON XP 1500+	$ 1009	(drsp121)
AMD ATHLON XP 1600+	$ 1019	(drsp122)
AMD ATHLON XP 1700+	$ 1039	(drsp123)
AMD ATHLON XP 1800+	$ 1089	(drsp124)
AMD ATHLON XP 1900+	$ 1129	(drsp125)

NIGHT DREAMER — $1479

- **DDR 266FSB UDMA-100 Main Board**
- **Black ANTEC Mid Tower Case**
- **512MB DDR PC2100 SDRAM**
- **80 GB Ultra DMA-100 HDD**
- **64MB nVidia GeForce-3 Titanium-500 DDR Video**
- Sound Blaster Live! Value 5.1 Sound Card
  upgrade: S.B. Audigy Platinum @ $159
- 16x DVD-ROM Drive
- **24x10x40 CD-RW Drive**
- **IEEE-1394 Fire Wire 3 Ports PCI Card**
- 56K V.90 Fax Modem w/Voice
- **Black 19" Digital SVGA Monitor, .26mm**
- Black ALTEC LANSING ACS54 Speakers
- **Microsoft Optical Explorer Mouse**
- Black PS2 Win98 Keyboard
- MS Windows XP Home Edition CD
- **Free COREL Office 2002 & Norton 2001 CD**
- One Year On-Site Warranty - add $39

AMD ATHLON XP 1500+	$ 1479	(nigsp121)
AMD ATHLON XP 1600+	$ 1489	(nigsp122)
AMD ATHLON XP 1700+	$ 1519	(nigsp123)
AMD ATHLON XP 1800+	$ 1569	(nigsp124)
AMD ATHLON XP 1900+	$ 1609	(nigsp125)

BACK TO SCHOOL — $939

Sep 2000 Computer Buyer's Guide **BEST BUY**

(www.ibuypower.com/product-pc/back-to-school.htm)

- **DDR 266FSB UDMA-100 Main Board**
- **512MB DDR PC2100 SDRAM**
- 60GB Ultra DMA 100 HDD
- 24x10x40 CD-RW Drive
- **64MB nVidia GeForce-2 MX400 AGP Video**
- AC97 Stereo 3D Sound
  upgrade: S.B. Live Value 5.1 @ $39
- 56K V.90 Fax Modem w/Voice
- 19" Digital SVGA Monitor, .26mm
- PS2 Win98 Keyboard & Scrolling Internet Mouse
  upgrade: MS Optical Intelli-Mouse @ $27
- **7 Pieces 1000 Watt Surround Sound Speakers**
- MS Windows XP Home Edition CD
- **Free Corel Office 2002 CD**
- One Year On-Site Warranty - add $39
- 16x DVD-ROM - add $59

AMD ATHLON XP 1500+	$ 939	(btsp121)
AMD ATHLON XP 1600+	$ 949	(btsp122)
AMD ATHLON XP 1700+	$ 979	(btsp123)
AMD ATHLON XP 1800+	$ 1019	(btsp124)
AMD ATHLON XP 1900+	$ 1059	(btsp125)

MP3 PRO — $1049

- **DDR 266FSB UDMA-100 Main Board**
- **512MB DDR PC2100 SDRAM**
- **80GB Ultra DMA-100 HDD**
  upgrade: 100MB UDMA-100 @ $79
- 24x10x40 CD-RW Drive
- **64MB nVidia GeForce-2 Titanium DDR Video**
- Sound Blaster Live!Value 5.1 Sound Card
- 56K V.90 Fax Modem w/Voice
- 19" Digital SVGA Monitor, .26mm
  upgrade: 19" ViewSonic E95 .22mm @ $79
  upgrade: 19 ViewSonic GS790 .22mm @ $179
- PS2 Win98 Keyboard & Scrolling Internet Mouse
  upgrade: MS Optical Intelli-Mouse @ $27
- **7 Pieces 1000 Watt Surround Sound Speakers**
- MS Windows XP Home Edition CD
- **Free Corel Office 2002 CD**
- One Year On-Site Warranty - add $39
- 56x CD-ROM - add $29

AMD ATHLON XP 1500+	$ 1049	(mpsp121)
AMD ATHLON XP 1600+	$ 1059	(mpsp122)
AMD ATHLON XP 1700+	$ 1089	(mpsp123)
AMD ATHLON XP 1800+	$ 1139	(mpsp124)
AMD ATHLON XP 1900+	$ 1179	(mpsp125)

GAMER'S PRO — $1189

(www.ibuypower.com/product-pc/gamer-pro.htm)

- **DDR 266FSB UDMA-100 Main Board**
- **512MB DDR PC2100 SDRAM**
- **80GB Ultra DMA-100 HDD**
- 16x DVD-ROM
- **24x10x40 CD-RW Drive**
- **64MB nVidia GeForce-3 Titanium-200 DDR Video**
  upgrade: 64MB GeForce-3Ti-500 @ $149
- Sound Blaster Live! Value 5.1 Sound Card
  upgrade: Sound Blaster Audigy Gamer @ $79
- 56K V.90 Fax Modem w/Voice
- 19" Digital SVGA Monitor, .26mm
  upgrade: 19" ViewSonic E95 .22mm @ $99
- **ALTEC LANSING AVS500 5 Pieces Speakers**
- **Microsoft Intelli Mouse** ; PS2 Win98 Keyboard
- MS Windows XP Home Edition CD
- **Free Corel Office 2002 CD**
- One Year On-Site Warranty - add $39

AMD ATHLON XP 1500+	$ 1189	(gpsp121)
AMD ATHLON XP 1600+	$ 1199	(gpsp122)
AMD ATHLON XP 1700+	$ 1219	(gpsp123)
AMD ATHLON XP 1800+	$ 1269	(gpsp124)
AMD ATHLON XP 1900+	$ 1309	(gpsp125)

GAMER'S DREAM — $1379

Apr 2000 PC Gamer Editors' Choice Award

- **DDR 266FSB UDMA-100 Main Board**
- **512MB DDR PC2100 SDRAM**
- **80GB Ultra DMA-100 HDD**
- 16x DVD-ROM Drive
- **24x10x40 CD-RW Drive**
- **IEEE 1394 Fire Wire 3 Ports PCI Card**
- **64MB nVidia GeForce-3 Titanium-500 DDR Video**
- Creative Lab Sound Blaster Live! Value 5.1 Sound
  upgrade: Sound Blaster Audigy Gamer @ $69
  upgrade: Sound Blaster Audigy Platinum @ $159
- 56K V.90 Fax Modem w/Voice
- 19" ViewSonic E90 .23mm SVGA Monitor
  upgrade: 19" ViewSonic GS790 .22mm @ $80
- **ALTEC LANSING AVS500 5 Pieces Speakers**
- **Microsoft Intelli Mouse** & PS2 Win98 Keyboard
- MS Windows XP Home Edition CD
- **Free COREL Office 2002 CD**
- One Year On-Site Warranty - add $39

AMD ATHLON XP 1500+	$ 1379	(gdsp121)
AMD ATHLON XP 1600+	$ 1389	(gdsp122)
AMD ATHLON XP 1700+	$ 1419	(gdsp123)
AMD ATHLON XP 1800+	$ 1469	(gdsp124)
AMD ATHLON XP 1900+	$ 1509	(gdsp125)

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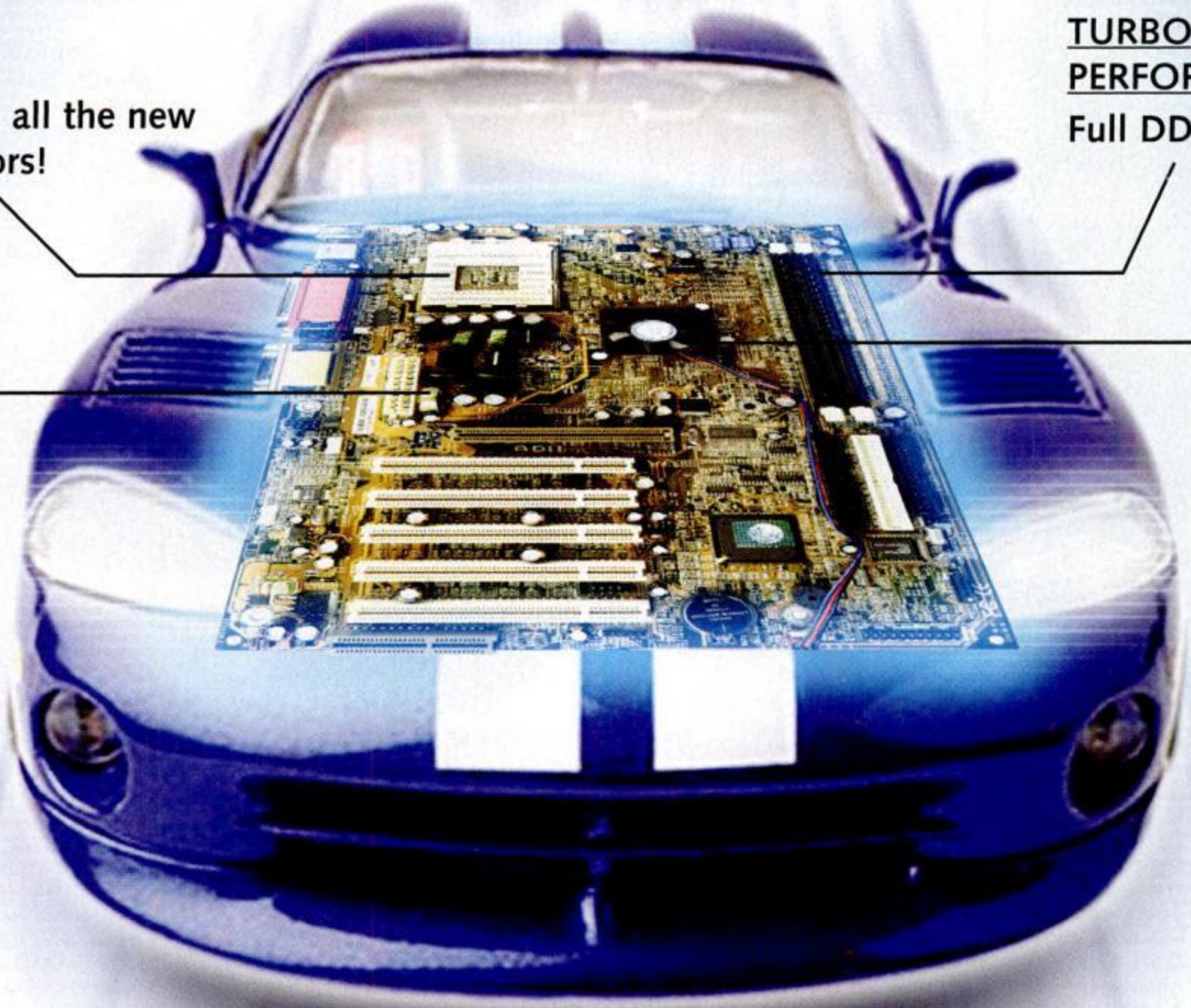

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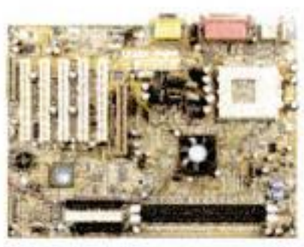

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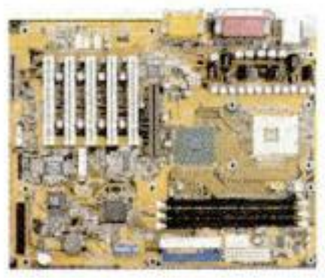

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- 400 MHz FSB
- PC 133 SDRAM
- Intel 845 Chipset
- Realtek LAN

AMD Athlon AMD Athlon XP

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- 3Com 905 10/100 Network Controller, Broad Band Ready
- Mitsumi 1.44MB Floppy Drive
- Microsoft Internet Keyboard & Microsoft IntelliMouse Optical
- Microsoft Windows XP Home Edition
- Free Software: Corel WordPerfect Office 2002 CD
- Free ABS™ High Quality Cloth-Surface Mouse Pad
- Free ABS™ PC Organizer (3" Color Binder w/Plastic Ziplock Pockets for User Manual, Drivers & Application Softwares)

AMD Athlon™ XP Processor 1800+[1] $1999 # 3818

AMD Athlon™ XP Processor 1700+[2] $1939 # 3817

1 QuantiSpeed™ architecture outperforms competitive 1.80GHz processors. QuantiSpeed™ architecture operates at 1.533GHz.
2 QuantiSpeed™ architecture outperforms competitive 1.70GHz processors. QuantiSpeed™ architecture operates at 1.47GHz.

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- AMD Athlon™ XP 266FSB DDR ATA100 4X AGP Mainboard
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- Hitachi 17" .27DP 1280x1024 Color Monitor
- **New Creative Labs SoundBlaster Audigy Sound Card & Mic**
- Creative Inspire 5300 5.1 Subwoofer/Speaker System
- Zoom 56K V.92 Data/Fax/Modem
- PCI 10/100 Network Controller, Broad Band Ready
- Mitsumi 1.44MB Floppy Drive
- Microsoft Office Keyboard & Microsoft IntelliMouse Optical
- Microsoft Windows XP Professional Edition
- Free ABS™ High Quality Cloth-Surface Mouse Pad
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- ✓Add Lexmark X73 All-in-One (Color Print/Copy/Scan) Center @$149

AMD Athlon™ XP Processor 1700+[1] $1229 # 3827

AMD Athlon™ XP Processor 1600+[2] $1199 # 3826

1 QuantiSpeed™ architecture outperforms competitive 1.70GHz processors. QuantiSpeed™ architecture operates at 1.47GHz.
2 QuantiSpeed™ architecture outperforms competitive 1.60GHz processors. QuantiSpeed™ architecture operates at 1.40GHz.

ABS™ PERFORMANCE 3 XP

- AMD Athlon™ XP 266FSB DDR ATA100 4X AGP Mainboard
- High-Performance Heatsink/Cooling System
- ATX White Mid-Tower Case w/300 Watt (AMD Certified)
- Kingston 128MB Fast PC2100 DDR SDRAM Memory
- 30GB 7200RPM Ultra ATA100 Hard Drive
- 52X CD-ROM Player
- ✓Add 16x10x40 CD-ReWritable Drive @$89
- ✓Optional Hitachi 17" .27DP 1280x1024 Color Monitor @$165
- **New Matrox G550 w/32MB 4X AGP Card w/Multi-Display Support of Combinations of 2 Monitors or Monitor & TV**
- Creative Labs SoundBlaster Live! 5.1 Sound Card & Mic
- Altec Lansing AVS500 Subwoofer/Speaker System
- Zoom 56K V.92 Data/Fax/Modem
- PCI 10/100 Network Controller, Broad Band Ready
- Mitsumi 1.44MB Floppy Drive
- Microsoft Internet Keyboard & Microsoft IntelliMouse
- Microsoft Windows XP Professional Edition
- Free ABS™ High Quality Cloth-Surface Mouse Pad
- Free ABS™ PC Organizer (3" Color Binder w/Plastic Ziplock Pockets for User Manual, Drivers & Application Softwares)
- ✓Add Microsoft Office Small Business Edition @$189

AMD Athlon™ XP Processor 1600+[1] $799 # 3846

AMD Athlon™ XP Processor 1500+[2] $779 # 3845

1 QuantiSpeed™ architecture outperforms competitive 1.60GHz processors. QuantiSpeed™ architecture operates at 1.40GHz.
2 QuantiSpeed™ architecture outperforms competitive 1.50GHz processors. QuantiSpeed™ architecture operates at 1.33GHz.

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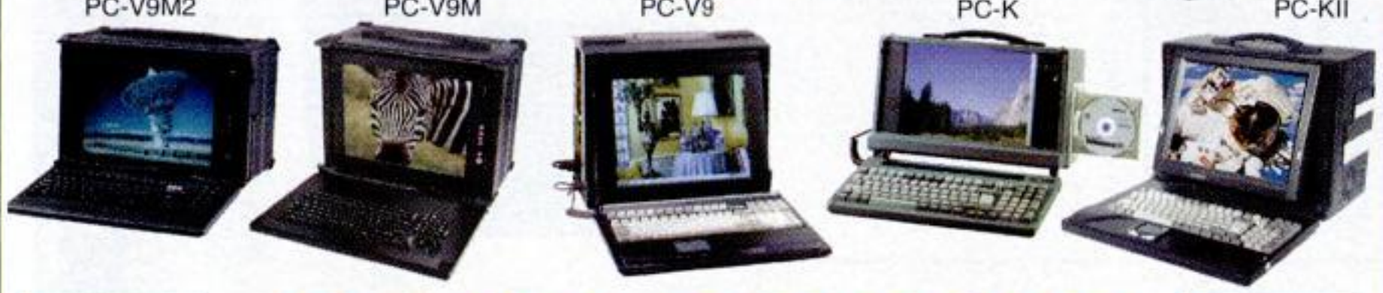

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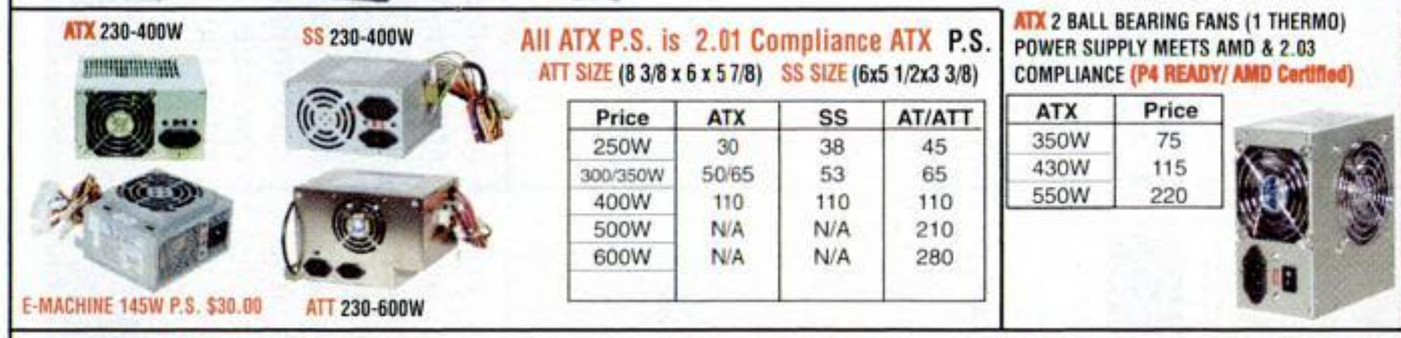

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400W	110	110	110
500W	N/A	N/A	210
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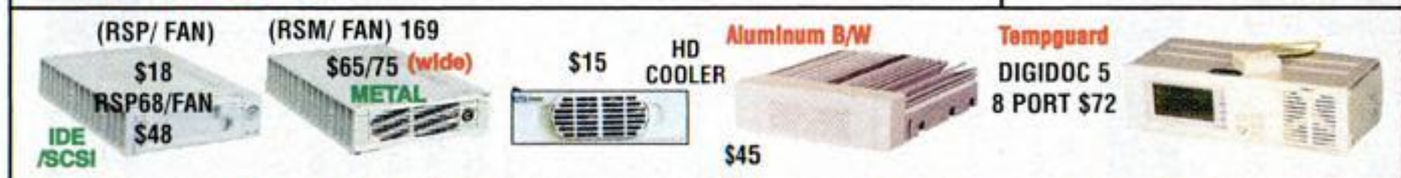

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MODEL/ SPECS	Bare Bone	Dimension W.D.H	I/O ports	5.25"	3.5"	PCI	PCI ISA
105LPX socket 370	255	12x13x3.1	PS2 KB,mouse,VGA,USB,RJ45,2S,1P,AUDIO, GAME	1	1/1	3	or 0
105LPX TV	275	12x13x3.1	PS2 KB,mouse,VGA,USB,RJ45,2S,1P,AUDIO,GAME,TV	1		3	or 0
109NLX socket 7	175	12.3x16x3.9	PS2 KB,mouse,VGA,USB,RJ45,2S,1P,AUDIO,GAME, IR	1	1/1	2	1
111M.NLX 370	260	11.5x10.6x2.5	PS2 KB,mouse,VGA,USB,RJ45,2S,1P,AUDIO, GAME,1394	w/slim CD	0/2.5 HD	2	or 0
192 M.ATX 370	185	13.8x16.5x3.4	PS2 KB,mouse,VGA,USB,RJ45,2S,1P,AUDIO,GAME	1	1/1	3	or 0
192B M.ATX 370	185	13.8x16.5x3.4	PS2 KB,mouse,VGA,USB,RJ45,2S,1P,AUDIO,GAME	1	1/1	3	& 0

Case Specification & Price List

Model	Price	Dimension W.D.H.	MB Size	5.25 Ext./Int.	3.5 Ext./Int.	P.S.
R02/BARE	180/300	19x17.6x3.5	M.ATX	1/0	1/1	150W
R04B/W	275	19x24.3x3.5	ATX	1/0	1/3	250W
R05B	430	19x242x3.5	ATX	1/0	1/4	430W
R06B	250	19x20.2x5.25	ATX	4/0	1/5	300W
R08 B/W	1550/1800	19x22x3.5				
R10 B	175	19x17x7	ATX	3/0	1/1	300W
R14 B/W	215	19x21x7	ATX	3/0	1/3	300W
R15	295/510	19x24.4x7	ATX	6/0	2/2	300W
R16 B/W	225	19x18x7	ATX	3/0	1/2	250W
R17 B 4U	215	19x21x7	ATX	3/0	1/2	250W
R20 B/W	275	19x20.5x7		8/0		300W
R21 B/W	275	19x18x7		8/0		300W
R22R/B/W	635/950	19x23.3x10.5	ATX	8/0	1/0	300W/R
R26R/B/W	630/850	19x22.6x10.7	ATX	4/0	2/4	300W/R
R28	290	19x17x8.7		8/0		300W
RSP	18	5.8x9.3x1.6			1	
RSM169-100	65/75	5.8x9.3x1.6			1	
001B	75	10x11.5x3		1/0		60W
001B1	65	8.3x10.6x2.8		1/0		50W
002B	88	6.9x14.6x5.8		2/0		60W
002B1	78	7.5x11.2x6.5		2/0		80W
004B	105	6.8x15.3x9.3		4/0		230W
004B1	100	7.5x17.3x10.2		4/0		200W
007B	180	7x15.8x13		7/0		250W
008B	280	8.4x20.2x18.3		8/0		300W
008B1	180	7.5x17.9x17.1		8/0		250W
105LPX/TV	255/275	11.9x12.6x3	LPX	1/0	1/1	90W
109(SP 98) bare	175	11x12.3x3.9	NLX	1/0	1/1	135W
111N bare	260	11.6x10.6x2.5	M.NLX	1/0	0/1	100W
192M.ATX/B	85	13.1x16.5x3.5	M.ATX	1/0	1/1	150W
224	75	17.4x18.8x6.1	ATX	3/0	2/2	230W
267	70	16.8x16.8x6.2	ATX	2/0	2/1	250W
271	85	17.3x15.9x5.5	ATX	2/0	1/1	250X
288	75	16.9x17x6	ATX	3/0	2/1	230W
304	55	7.9x18.8x13.9	ATX	3/0	2/1	300W
325B	55	8x18.5x17	ATX	3/0	2/1	235W
327	72	7.5x16.5x17.3	ATX	3/0	2/2	230W
337	75	7.8x18.8x16.5	ATX	3/0	2/2	300W
338	55	7x14.7x13.8	M. ATX	2/0	2/1	145W
366	50	7.2x15.5x14.3	M. ATX	2/0	1/1	235W
367	55	7.7x16.5x17	ATX	3/0	2/1	235W
370	80	8.3x17.3x16.1	ATX	3/0	2/2	250W
392	80	7.5x17x17	ATX	3/0	2/2	250W
393	90	9x17.5x17.5	ATX	6/0	1/1	250W
396	55	8.3x17x15.5	ATX	3/0	1/3	230W
401	110	8.5x17.3x18	ATX	2/0	2/2	250W
405B	75	7.8x17.5x17.2	ATX	4/0	2/2	320W
408	80	8.2x19.8x18.4	ATX	3/0	1/5	250W
409	295	9.5x22x18.1	ATX	4/0	2/5	300W
411	67	7.2x17.2x16.8	ATX	4/0	2/1	250W
412	67	7.2x17.2x16.8	ATX	4/0	1/2	250W
413S/BL	67	8.5x19.5x18	ATX	4/0	2/1	250W
415	75	8.8x19.5x19.7	ATX	8/0	1/0	300W
418B/W	115	8.1x18.8x21.4	ATX	4/0	2/4	300W
422	70	7.7x16.6x18.1	AT	4/0	1/4	250W
424	70	7.5x18.9x16.7	ATX	4/0	2/1	250W
426B/W/S	70/75	7.5x17.5x19.3	ATX	3/0	2/2	250W
427	75	7.5x16.5x17.3	ATX	3/0	2/2	250W
436	70/85	8.6x18x15.6	ATX	3/0	2/2	250/300W
442	60	8x18.25x16.3	ATX	4/0	2/1	300W
455	110	8.5x17.5x18.6	ATX	4/0	2/3	250W
465	185	9.3x17x17.2	XEON/ATX	2/0	2/2	300W
467	75/90	7.5x16.7x18.8	ATX	3/0	1/4	250W/300W
470	110	8.3x17.3x21.3	ATX	4/1	1/2	250W
471	110	8.4x17.5x21.3	ATX	3/1	1/4	250W
472	60	7.5x18x17.6	ATX	4/0	2/2	250W
474	285	7.8x17.2x17.2	ATX	4/0	2/2	300W
476	70	8x17.2x17	ATX	4/0	2/2	300W
478	155	7.9x18.4x16.4	ATX	4/0	2/1	300W
479	155	7.9x18.4x16.4	ATX	4/0	2/1	300W
480	195	7.8x18x16.5	ATX	4/0	2/1	300W
482B	80	7.8x19.8x17.5	ATX	4/0	2/2	250W
486	67	9.6x19.5x17	ATX	4/0	2/1	250W
489**	80	7.3x17x17	ATX	3/0	1/2	235W
492	229	8.3x17.5x17.6	ATX	4/0	3/5	300W
493B	234	8.3x17.5x17.6	ATX	4/0	3/5	300W
496	60	8.25x17.8x16.5	ATX	4/0	1/3	250W
501	155	8.25x17.2x23.8	ATX	4/0	2/4	300W
503R/B	455	14.8x20.4x18.4	ATX	8/0	2/4	300RW
503/B	295	14.8x20.4x18.4	ATX	8/0	2/4	300W
505	555	14.6x23x26.8	ATX	12/0	1/8	300W
505R	670	14.6x23x26.8	ATX	12/0	1/8	300RW
506/R	155/370	7.8x16.5x24.4	ATX	6/0	2/2	300W/R
518	145	8.1x18.5x26.5	ATX	6/0	2/6	300W
524	380	13.9x25.6x19.1	ATX	7/0	1/2	300RW
526B/W	105/120	7.5x17.5x24.5	ATX	6/0	1/4	250W/300W
528	95/110	7.5x16.5x24.8	ATX	6/0	1/5	250W/300W
536	93/108	7.8x17x24	ATX	5/0	1/5	250W/300W
538	290	8x20.5x24.5	ATX	5/0	1/6	300RW
560/R	290/445	15x24.5x23.5	ATX	11/0	2/4	300W/300R
562/R/B/W	250/470	8.7x17.9x26.8	ATX	9/1	1/0	300W/300R
563/RB/W	145/370	8.7x17.9x26.8	ATX	10/0		300W/300R
565	185	9.25x18.3x21.2	XEON/ATX	4/0	2/4	300W
568	95/110	7.5x17x22.8	ATX	5/0	2/4	250W/300W
569B/W	210	13.5x17.8x14	B/ATX	6/2	0/8	300W/300W
570/R	150/370	8.3x17.3x26.4	ATX	7/1	1/2	300W/300R
571/R	160/370	8.3x17.3x26.4	ATX	6/1	1/2	300W/300R
582	105/120	7.8x16.5x23.2	ATX	6/0	2/1	250W/300W
588	99/114	7.8x16.5x23.3	ATX	5/0	1/3	250W/300W
1620/R	950	16.5x20.3x34.3	F/ATXx2	16/0		300R

Model# Starts with:

1 for Slim Case
2 for Desktop Case
3 for Mini-Mid Case
4 for Mid Case
5 for Full/File Server Case

*Case Color: Blue, Purple, Green, Orange, Red.
**Case Color: Blue, Purple, Green, Red, Black.

Side Open: Side Panel can be removed independently
Slide Door: Sliding front door up and down
Slide MB Plate: Motherboard tray ca slide in and out form rear

MB SIZE = MOTHERBOARD SIZE • F= FULL SIZE • B= BABY SIZE
X=ATX • M. ATX= Micro ATX
R= REDUNDANT POWER SUPPLY WITH HARDSWAP
250XB= Ball Bearing

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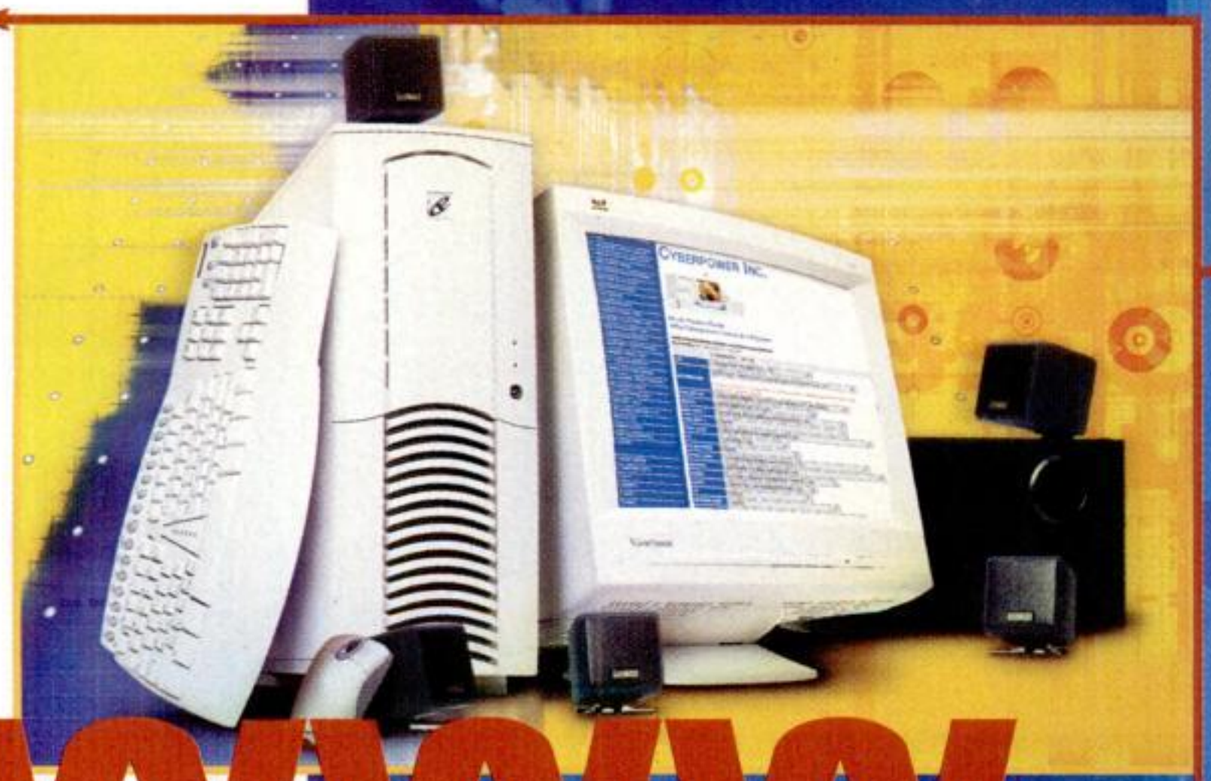

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GAMER XTREME 1000

JUNE 2001 Computer Buyer's Guide Best Buy

- VIA KT-266 266MHZ FSB DDR 4X AGP MB
- 512 MB DDR PC2100 SDRAM Momery
- 40 GB 5400 RPM Ultra UDMA 100 Hard Drive
- Nvidia Geforce–2 MX-400 64MB AGP Video Crad
- 16X DVD-ROM Drive
- 16X10X40 EIDE CDRW Drive
- AC97 3D Wavetable Sound Card
- 450 Watt Stereo Subwoofer Speaker System
- 19" .26MM SVGA Color Monitor
- Zoom 56K V.90 Fax Modem
- Mitsumi 1.44 MB Floppy Drive
- PS2 Win98 Multimedia Keyboard
- PS2 Internet Mouse w/ Wheel
- Antec SX1030 Soho Server Tower w/ 375 Watt
- MS Windows XP Home or Windows ME
- Corel Wordperfect Office 2000
- One Year On Site Service +$39

AMD ATHLON™ XP-1900+	$ 1065	MK121
AMD ATHLON™ XP-1800+	$ 1018	MK122
AMD ATHLON™ XP-1700+	$ 956	MK123
AMD ATHLON™ XP-1600+	$ 925	MK124
AMD ATHLON™ XP-1500+	$ 915	MK125
AMD ATHLON™ 1.0GHZ	$ 875	MK126

XP 9000 PROFESSIONAL

(www.cyberpowerpc.com/cyberpower/dvdprof.html)

- Intel I850 Chipset UDMA 100 4x AGP MB
- 512 MB PC800 Rambus Memory
- 60 GB Ultra DMA 100 Hard Drive
- NEW!!! Nvidia Geforce-3 Titanium TI 200 64MB
- 16X DVD-ROM Drive
- 16X10x40 CD-RW Drive
- Creative Lab Sound Blaster Live Audigy 5.1
- Creative cambridge SoundWorks Desk Top Theater 5.1 DTT2200 Surround Sound System
- 19" Viewsonic E90 .22MM 1800 x 1500 SVGA
- 3COM US-Robotic 56K V.90 Fax Modem w/ Voice
- Mitsumi 1.44 MB Floppy Drive
- Microsoft PS2 Intelli Internet Keyboard
- Microsoft USB OPTICAL Intelli Mouse
- Antec SX1030 Soho Server Tower w/ 375 Watt
- MS Windows XP Home or Windows ME
- Corel Wordperfect Office 2000
- Norton Anti Virus 2001
- One Year On Site Service +$39

Intel Pentium IV 2000	$ 1675	M1211
Intel Pentium IV 1900	$ 1575	M1212
Intel Pentium IV 1800	$ 1555	M1213
Intel Pentium IV 1700	$ 1515	M1214
Intel Pentium IV 1600	$ 1485	M1215
Intel Pentium IV 1500	$ 1449	M1216

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- VIA KT-266MHZ FSB DDR MB
- 512 MB PC266 PC2100 DDR Memory
- 60 GB Ultra DMA 100 Hard Drive
- Nvidia Geforce-3 Titanium TI 200 64MB DDR Video Card
- 16X DVD-ROM Drive
- 16X10X40 CD-RW DRIVE
- Creative Lab Sound Blaster Live Value 5.1 Sound Card
- Creative cambridge SoundWorks Desk Top Theater 5.1 Inspire 5300 Surround Sound System
- 19" Viewsonic E90 .22MM SVGA Monitor
- Diamond Supra 56K V.90 Fax Modem
- Mitsumi 1.44 MB Floppy Drive
- Microsoft PS2 Intelli Internet Keyboard
- Microsoft PS2 Intelli Mouse w/ Wheel
- Antec SX1030 Soho Server Tower w/ 375 Watt
- MS Windows XP Home or Windows ME
- Corel Wordperfect Office 2000
- One Year On Site Service +$39

AMD ATHLON™ XP-1900+	$ 1355	MD121
AMD ATHLON™ XP-1800+	$ 1305	MD122
AMD ATHLON™ XP-1700+	$ 1245	MD123
AMD ATHLON™ XP-1600+	$ 1215	MD124
AMD ATHLON™ XP-1500+	$ 1205	MD125
AMD ATHLON™ 1.0GHZ	$ 1165	MD126

INTEL PENTIUM IV SPECIAL

- Intel I850 Chipset UDMA 100 4x AGP MB
- 256 MB PC800 Rambus Memory
- 40GB UDMA 100 Hard Drive
- Nvidia Geforce–2 MX-400 64MB AGP Video Card
- 16x10x40 CDRW Drive
- 16X DVD-ROM Drive
- AC97 3D Wavetable Sound Card
- Altec Lansing AVS500 Subwoofer Speaker System
- 15" Hyundai L50A Flat Panel LCD Display
- Zoom 56K V.90 Fax Modem w/ Voice
- Mitsumi 1.44 MB Floppy Drive
- Internet Multimedia Keyboard & Internet Mouse
- Antec SX1030 Soho Server Tower w/ 375 Watt
- MS Windows XP Home or Windows ME
- Corel Wordperfect Office 2000
- One Year On Site Service +$39

Intel Pentium IV 2000	$1399	M1271
Intel Pentium IV 1900	$1305	M1272
Intel Pentium IV 1800	$1285	M1273
Intel Pentium IV 1700	$1245	M1274
Intel Pentium IV 1600	$1235	M1275
Intel Pentium IV 1500	$1179	M1276

XP 8000 DREAM

- Intel I850 Chipset UDMA 100 4x AGP MB
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- 40 GB Ultra DMA 100 Hard Drive
- Nvidia Geforce–2 MX-400 64MB AGP Video Card
- 16x10x40 CD-RW Drive
- 16X DVD-ROM Drive
- 19" .26MM 1800 X 1400 SVGA Monitor
- AC97 3D Wavetable Sound Card
- 400 Watt Subwoofer System *Add a Zip Drive $59
- 56K V.90 Fax Modem w/ Voice
- Mitsumi 1.44 MB Floppy Drive
- Internet Multimedia Keyboard & Internet Mouse
- Antec SX1030 Soho Server Tower w/ 375 Watt
- MS Windows XP Home or Windows ME
- Corel Wordperfect Office 2000
- One Year On Site Service +$39

Intel Pentium IV 2000	$ 1245	M1221
Intel Pentium IV 1900	$ 1145	M1222
Intel Pentium IV 1800	$ 1125	M1223
Intel Pentium IV 1700	$ 1085	M1224
Intel Pentium IV 1600	$ 1049	M1225
Intel Pentium IV 1500	$ 1019	M1226

ATHLON LIGHTNING DVD

- VIA KT-133A 266MHZ FSB 4X AGP MB
- 512 MB PC133 SDRAM Memory
- 40 GB Ultra DMA 100 RPM Hard Drive
- Nvidia Geforce-2 MX 400 64MB 4X AGP Video Card
- 16X DVD-ROM Drive
- 16x10x40 CDRW Drive
- AC97 3D Wavetable Sound Card
- 450 Watt Subwoofer System
- 19".26MM SVGA Monitor
- Zoom 56K V.90 Fax Modem w/ Voice
- Mitsumi 1.44 MB Floppy Drive
- Internet Multimedia Keyboard & Internet Mouse
- Antec SX1030 Soho Server Tower w/ 375 Watt
- MS Windows XP Home or Windows ME
- Corel Wordperfect Office 2000
- One Year On Site Service +$39

AMD ATHLON™ XP-1900+	$ 1036	MH121
AMD ATHLON™ XP-1800+	$ 989	MH122
AMD ATHLON™ XP-1700+	$ 925	MH123
AMD ATHLON™ XP-1600+	$ 899	MH124
AMD ATHLON™ XP-1500+	$ 889	MH125
AMD ATHLON™ 1.0GHZ	$ 849	MH126
AMD DURON 1.2GHZ	$ 865	MH127
AMD DURON 1.0GHZ	$ 835	MH128

CYBERPOWER BEST BUY

- DFI CA64 VIA 694 4X AGP UDMA 100 MB
- 512 MB PC133 SDRAM Memory
- 40 GB Ultra DMA 100 Hard Drive
- ATI Expert 2000 32 MB AGP Video Card
- 16X DVD-ROM Drive
- AC 97 3D Wavetable Sound Card
- 800 Watt Subwoofer System w/ Satellite Speakers
- Zoom 56K V.90 Fax Modem
- Mitsumi 1.44 MB Floppy Drive
- Internet Multimedia Keyboard & Internet Mouse
- ATX Medium Tower Case w/ 250 Watt UL
- MS Windows XP Home or Windows ME
- Corel Wordperfect Office 2000
- 17' .27 MM SVGA +$159
- One Year On Site Service +$39

Intel Pentium III 1000	$ 589	M1231
Intel Pentium III 933	$ 565	M1232
Intel Pentium III 866	$ 549	M1233
Intel Pentium III 850	$ 539	M1234
Intel CELERON 1000	$ 489	M1234
Intel CELERON 900	$ 465	M1235
Intel CELERON 850	$ 459	M1236

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COOLING SYS.	AMD CERTIFIED CPU FAN & HEATSINK UP TO 1.4GHZ
MEMORY	64MB SDRAM PC133 (+19)
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HARD DRIVE 2	NONE

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- 512 MB PC133 SDRAM Memory
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- ATI Radeon VE 32MB DDR Dual Monitor Output Video Card
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- Creative Lab Sound Blaster Live Value 5.1 Sound Card
- Creative cambridge SoundWorks Desk Top Theater 5.1 Inspire 5300 Surround Sound System
- PCI 56K V.90 Fax Modem
- Black 1.44 MB Floppy Drive
- Black PS2 Internet Keyboard
- Black PS2 Internet Mouse w/ Wheel
- Black Antec SX1040 Server Tower Case 375 Watt
- MS Windows XP Home or Windows ME
- Corel Wordperfect Office 2000
- Optional Black 19" .26 MM SVGA +$335
- One Year On Site Service +$39

AMD ATHLON™ XP-1900+	$ 895	MT121
AMD ATHLON™ XP-1800+	$ 849	MT122
AMD ATHLON™ XP-1700+	$ 789	MT123
AMD ATHLON™ XP-1600+	$ 759	MT124
AMD ATHLON™ XP-1500+	$ 749	MT125
AMD ATHLON™ 1.0GHZ	$ 709	MT126

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- VIA KT-266 266MHZ FSB DDR 4X AGP MB
- 512 MB PC2100 266MHZ DDR Memory
- 60 GB Ultra DMA 100 Hard Drive
- Nvidia Geforce-2 Titanium TI 200 64MB DDR 4X AGP Video Card
- 16X DVD-ROM Drive
- 16X10X40 CD-RW Drive
- Creative Lab Sound Blaster Live 5.1 Sound Card
- Altec Lansing AVS 500 Subwoofer System
- 19" Viewsonic E90 .22MM SVGA Monitor
- Zoom 56K V.90 Fax Modem
- Mitsumi 1.44 MB Floppy Drive
- PS2 Win98 Multimedia Keyboard
- PS2 Internet Mouse w/ Wheel
- Antec SX1030 Soho Server Tower w/ 375 Watt
- MS Windows XP Home or Windows ME
- Corel Wordperfect Office 2000
- One Year On Site Service +$39

AMD ATHLON™ XP-1900+	$ 1255	ML121
AMD ATHLON™ XP-1800+	$ 1209	ML122
AMD ATHLON™ XP-1700+	$ 1149	ML123
AMD ATHLON™ XP-1600+	$ 1119	ML124
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AMD ATHLON™ XP-1700+	$ 923	MA123
AMD ATHLON™ XP-1600+	$ 893	MA124
AMD ATHLON™ XP-1500+	$ 883	MA125
AMD ATHLON™ 1.0GHZ	$ 845	MA126
AMD DURON 1.2GHZ	$ 865	MA127
AMD DURON 1.0GHZ	$ 829	MA128

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- VIA KT-266 266MHZ FSB 4X AGP MB
- 512 MB PC133 SDRAM Memory
- 40 GB Ultra DMA 100 Hard Drive
- Nvidia Geforce-2 MX 200 64MB 4X AGP Video Card
- 8X4X32 CD-RW EIDE Drive
- 16X DVD-ROM Drive
- AC97 3D Wavetable Sound Card
- 450 WATT Subwoofer Speaker System
- Zoom 56K V.90 Fax Modem w/ Voice
- Mitsumi 1.44 MB Floppy Drive
- PS2 Win98 Keyboard & Internet Mouse
- AMD Certified 350 Watt Medium Tower Case
- MS Windows XP Home or Windows ME
- Corel Wordperfect Office 2000
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- One Year On Site Service +$39

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AMD ATHLON™ XP-1800+	$ 759	MJ122
AMD ATHLON™ XP-1700+	$ 699	MJ123
AMD ATHLON™ XP-1600+	$ 669	MJ124
AMD ATHLON™ XP-1500+	$ 659	MJ125
AMD ATHLON™ 1.0GHZ	$ 619	MJ126
AMD DURON 1.2GHZ	$ 639	MJ127
AMD DURON 1.0GHZ	$ 605	MJ128

AMD BEST BUY

- VIA KT-133A 266MHZ FSB 4X AGP MB
- 256 MB PC133 SDRAM Memory
- 40 GB Ultra DMA 100 Hard Drive
- Nvidia Geforce-2 MX-200 32MB 4X AGP Video Card
- 16X DVD-ROM Drive
- AC97 3D Wavetable Sound Card
- 450 WATT Subwoofer Speaker System
- Zoom PCI 56K V.90 Fax Modem
- Mitsumi 1.44 MB Floppy Drive
- 108 Key Win98 Keyboard & Internet Mouse
- AMD Certified 350 Watt Medium Tower Case
- MS Windows XP Home or Windows ME
- Corel Wordperfect Office 2000
- 17".27MM SVGA +$155
- Upgrade to Antec Server Case [As Shown] +$49
- One Year On Site Service +$39

AMD ATHLON™ XP-1900+	$ 715	ME121
AMD ATHLON™ XP-1800+	$ 669	ME122
AMD ATHLON™ XP-1700+	$ 609	ME123
AMD ATHLON™ XP-1600+	$ 576	ME124
AMD ATHLON™ XP-1500+	$ 565	ME125
AMD ATHLON™ 1.0GHZ	$ 529	ME126
AMD 1.2GHZ	$ 546	ME127
AMD 1.0GHZ	$ 505	ME128

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(www.cyberpowerpc.com/cyberpower/homeenter.html)

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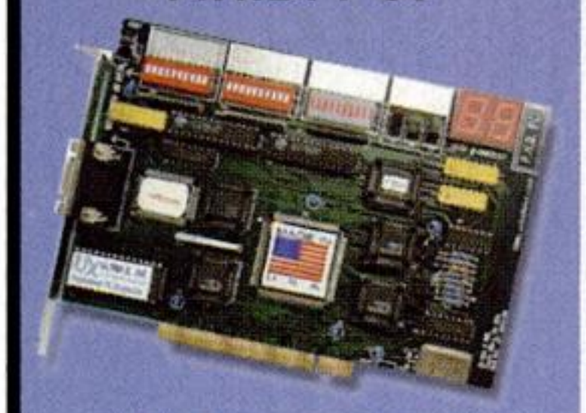

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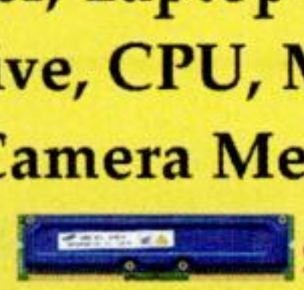

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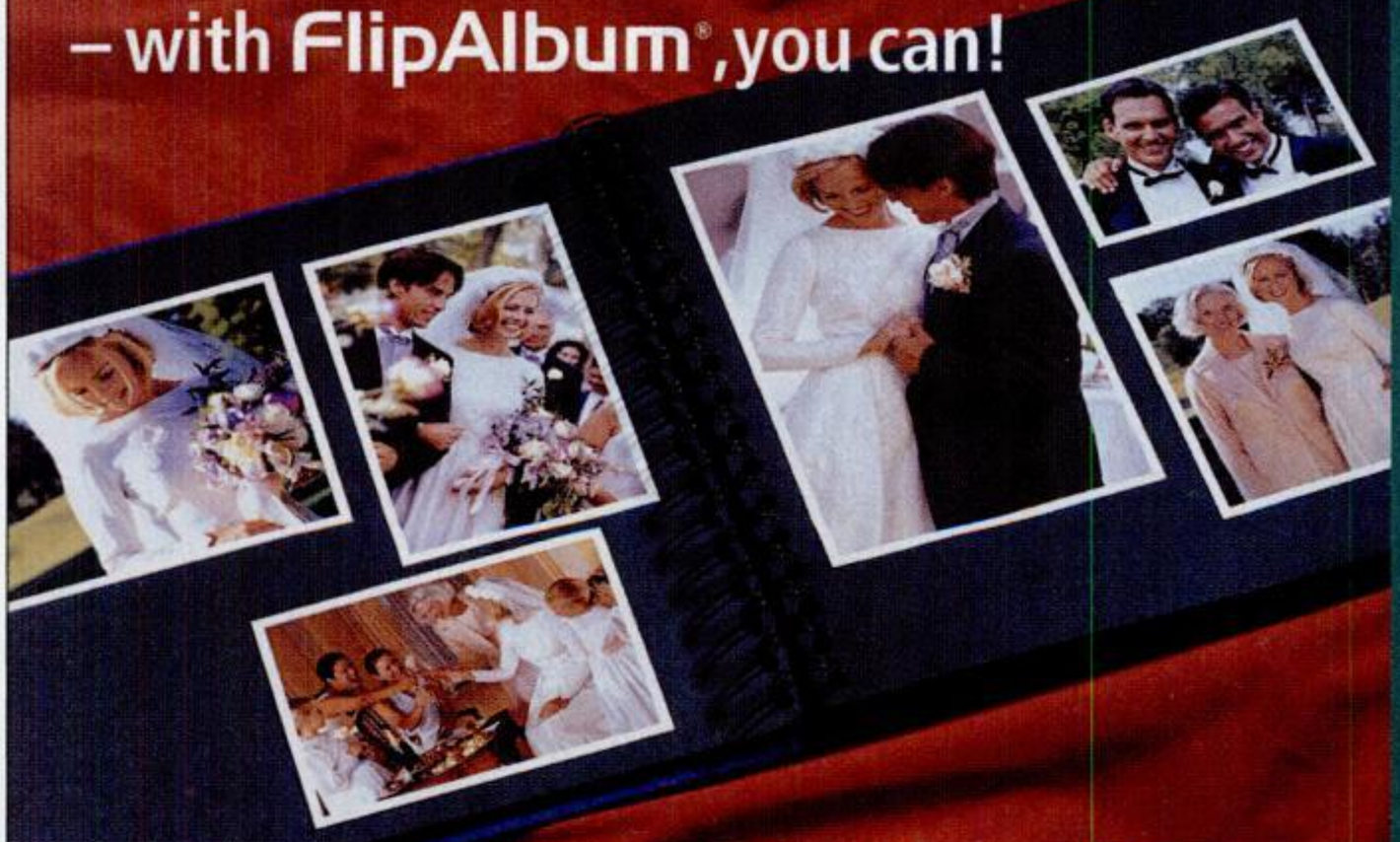

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MAXIMUM PC Rig of the Month

THIS MONTH: Dev Jugdeo's Air Machine

If you've already seen the feature that starts on page 46, you know that *Maximum PC* is no stranger to extreme case modifications. We daresay we've seen it all—which is exactly why a PC like Dev Jugdeo's "Air" caught our attention.

Sure, we've seen crazier paint schemes. And, yes, we've seen nuttier cooling contraptions. And, of course, we've seen wilder "concept" boxes (Drew Lanclos's "G4PC" on page 48 takes the cake for sheer "I'll-shoehorn-a-PC-into-anything-that-moves" lunacy). But during our most recent Rig of the Month judging deliberations, we grew a bit tired of visual excess, all the fluttering flags and cartwheeling clowns of the case-modding scene. We wanted some relief—a touch of subtlety, if you will. And in rushed a breath of fresh Air.

We ultimately chose Jugdeo's rig for its sublime integration of form, symbolism, and function, as well as its understated—might we say artsy?—aesthetic. We dig the way his glyph plays off of the symmetry of his case fans, and how his metal fan cages work so well with the silver enamel paint on his case.

If you have a contender for Rig of the Month, e-mail **input@maximumpc.com** with pics and a brief write-up.

MPC: How do the open cutouts factor into cooling?
As you can see from the images, the fans and symbol are very close together, which doesn't give me much room to work with a Plexiglas cover. People have suggested that this will affect the cooling. But because of the high number of fans in the case, I don't see any problems at all. My temps range from 15–19°C at idle to 34–35°C max at full load.

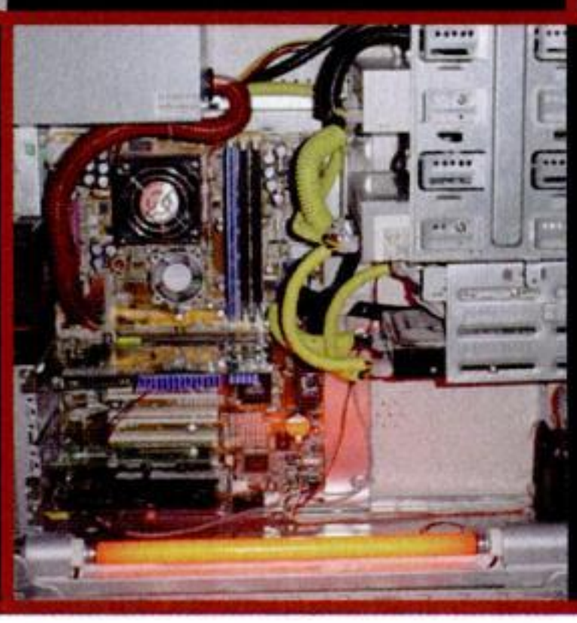
MPC: Tell us about your cutout.
The symbol is the Chinese symbol for air. I chose this symbol because I wanted to focus on cooling my system. I've seen rigs that use the same number of fans, but in poorly placed positions. So I wanted to show everyone that it's possible to have a great-looking case with extreme cooling without going overboard.

The first thing I did was pencil a template of fans and the logo itself on the inside of the case. After all the measurements were done—positioning the fans at the same level as the CPU, for example—it was time to start cutting.

I chose to use a Dremel MultiPro Kit. Everyone said this wouldn't cut the case properly, but I wanted to see for myself. I purchased reinforced metal cutting blades—make sure you buy a lot, because you'll go through a lot. The Dremel went through the case like a hot knife through butter! Make sure you have protective eyewear, because the blade generates a lot of sparks. The key to cutting the case so precisely is patience. Cut in short blasts. Don't just cut continuously, because that causes the blade to heat up faster, which will make it break more easily.

After everything was cut out, I used the sanding tool that came in the Dremel kit and went around the edges to the point where you could run your finger across the edges without feeling any sharp edges.

MPC: Cooling's obviously important to you, so tell us about your fans.
On my CPU, I have a 60mm Delta fan that spins at 7000rpm—nice and loud! I also have three 40mm drive-bay fans (one of which is used to cool the northbridge heatsink), one 80mm case fan in the front blowing air inside, and three 80mm fans on the side. All totaled, I have nine fans—three bay, one front, three side, one rear, and one on my power supply.



MPC: OK, so what's actually being cooled?
It's a Pentium III 733MHz. I'm using the ASUS CUV4X mobo (PC133/VC133, AGP Pro/4x, VIA Apollo Pro 133Z chipset). It's currently OC'd to 854MHz, with the PC133 running at 155MHz. When benchmarking, I run it at 881MHz with the memory at 160MHz. My videocard is an AOpen GTS Pro PA256 Deluxe II 32MB. Its stock rating is 200/400, but I have OC'd it to 235/435.

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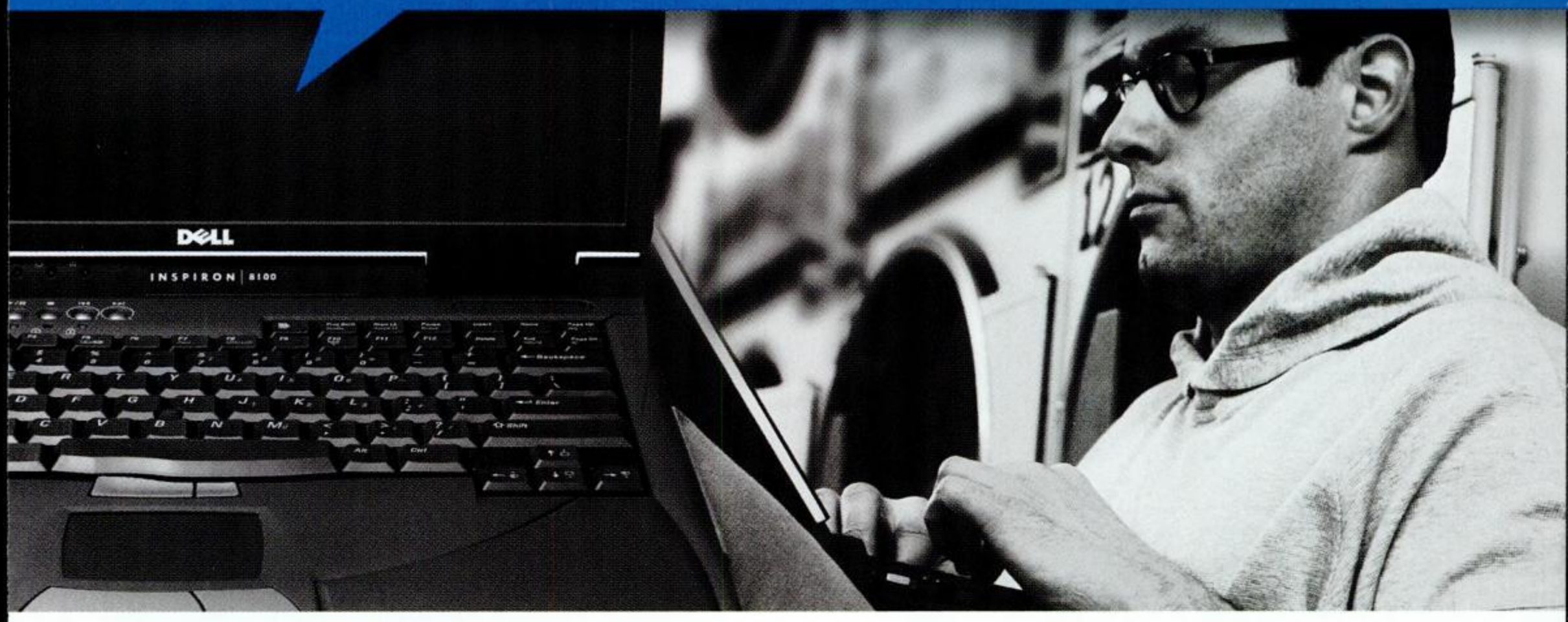

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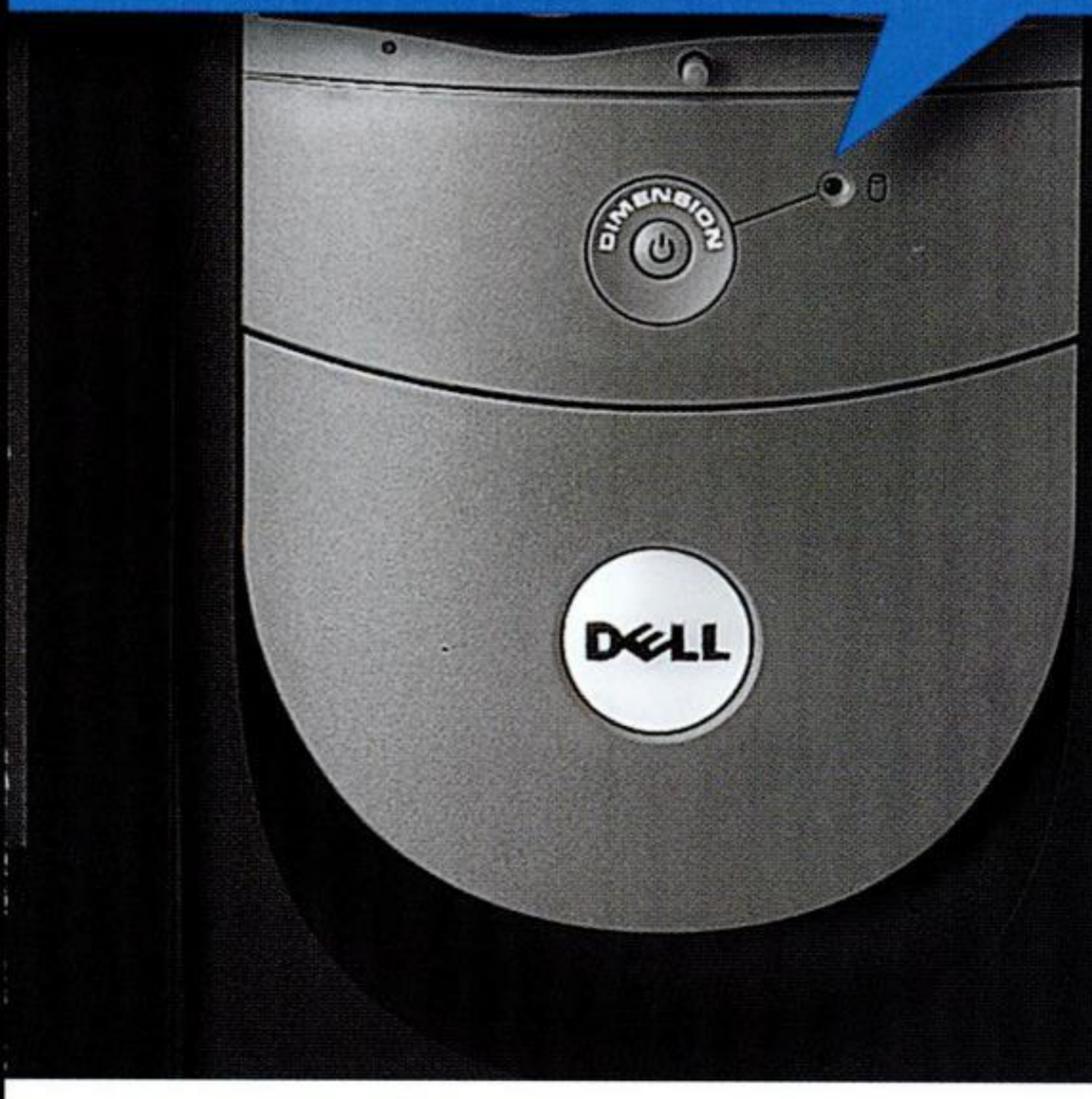

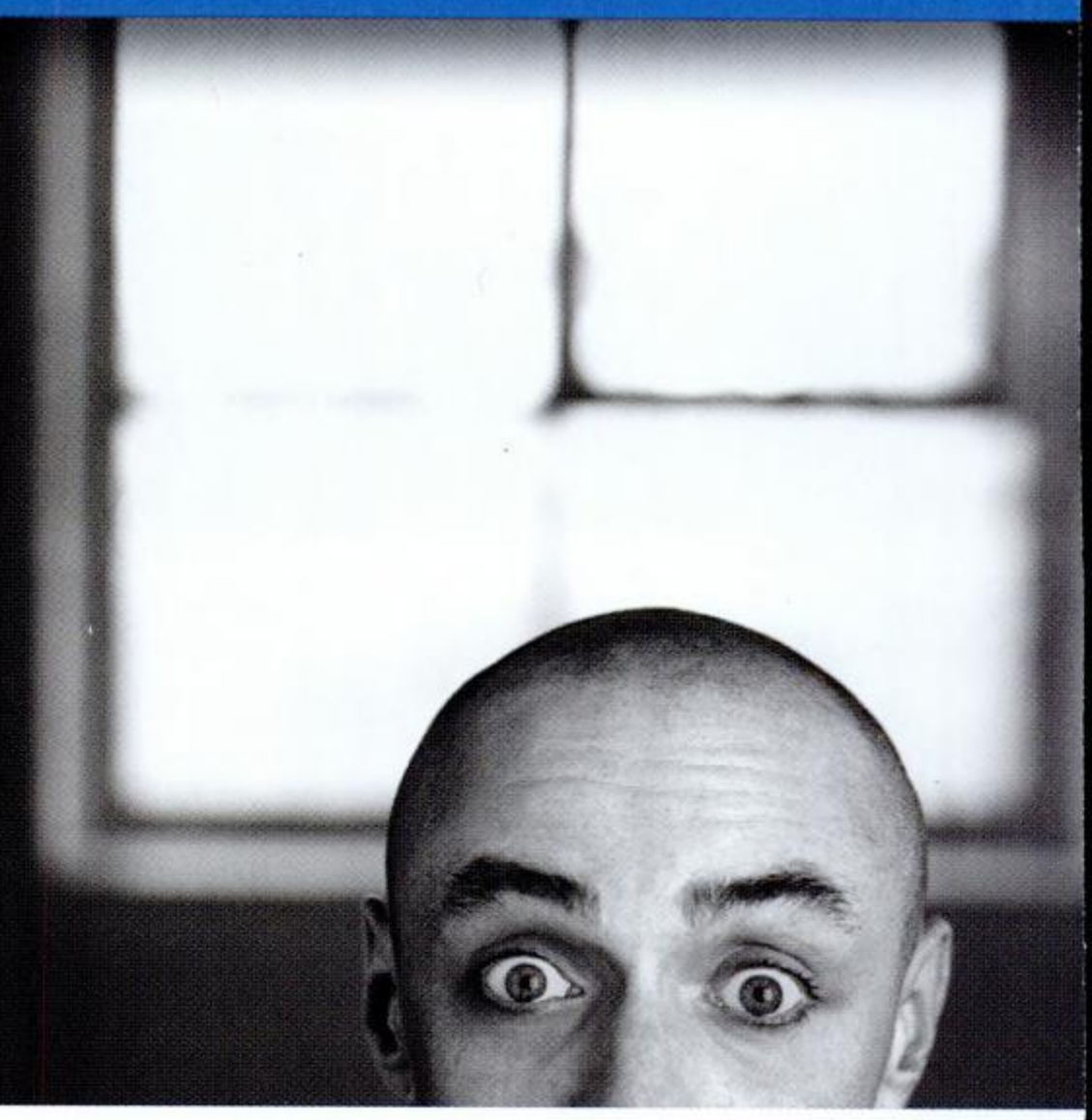

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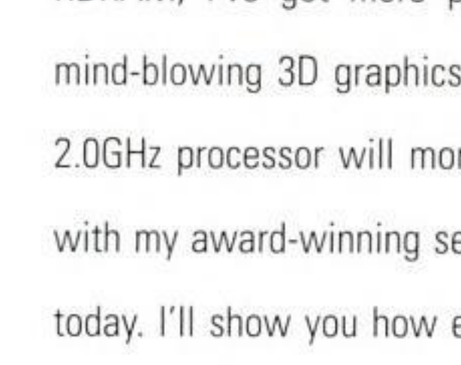

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